EEDEN07-721

technical data



Althermа

R-410A

ERHQ011-016AA

EKHBH007AC / EKHBX007AC

EKSWW150-300

Altherma

ERHQ011-016AA
EKHBH007AC / EKHBX007AC
EKSW150-300

In all of us,
a green heart

Daikin's unique position as a manufacturer of air conditioning equipment, compressors and refrigerants has led to its close involvement in environmental issues. For several years Daikin has had the intention to become a leader in the provision of products that have limited impact on the environment. This challenge demands the eco design and development of a wide range of products and an energy management system, resulting in energy conservation and a reduction of waste.

ISO14001 assures an effective environmental management system in order to help protect human health and the environment from potential impact of our activities, products and services and to assist in maintaining and improving the quality of the environment.

Daikin Europe N.V. is approved by LRQA for its Quality Management System in accordance with the ISO9001 standard. ISO9001 pertains to quality assurance regarding design, development, manufacturing as well as to services related to the product.

Daikin units comply with the European regulations that guarantee the safety of the product.

DAIKIN EUROPE N.V.

Naamloze Vennootschap
Zandvoordestraat 300
B-8400 Ostend, Belgium
www.daikin.eu
BTW: BE 0412 120 336
RPR Oostende

EEDEN07-721

EEDEN07-721 - 09/2007
Printed in Belgium by Goekint Graphics

EEDEN07-721

technical data



Altherma

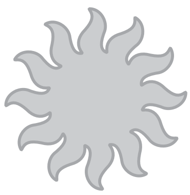
R-410A

ERHQ011-016AA

EKHBH007AC / EKHBX007AC

EKSWW150-300

Heating only



Heat pump



TABLE OF CONTENTS
ERHQ

1 Features

- Cost effective alternative to a fossil fuel boiler
- Low energy bills and low CO2 emissions
- Easy to install
- Total solution for year round comfort



2 Specifications

2-1 NOMINAL CAPACITY AND NOMINAL INPUT				ERHQ011AA + EKHBH016AA	ERHQ014AA + EKHBH016AA	ERHQ016AA + EKHBH016AA	ERHQ011AA + EKHBX016AA	ERHQ014AA + EKHBX016AA	ERHQ016AA + EKHBX016AA
For combination indoor units + outdoor units	Indoor Units			EKHBH016AA	EKHBH016AA	EKHBH016AA	EKHBX016AA	EKHBX016AA	EKHBX016AA
Condition 1	Heating capacity	Nominal	kW	11.2	14.0	16.0	11.2	14.0	16.0
	Cooling capacity	Nominal	kW				13.9	17.3	17.8
	Heating PI	Nominal	kW	2.46	3.17	3.83	2.46	3.17	3.83
	Cooling PI	Nominal	kW				3.79	5.78	6.77
	COP	Nominal		4.55	4.42	4.18	4.55	4.42	4.18
	EER	Nominal					3.67	2.99	2.63
Nominal Capacity	Heating capacity	Nominal	kW	10.3	13.1	15.2	10.3	13.1	15.2
	Cooling capacity	Nominal	kW				10.0	12.5	13.1
	Heating PI	Nominal	kW	3.06	3.88	4.66	3.06	3.88	4.66
	Cooling PI	Nominal	kW				3.60	5.29	5.95
	COP	Nominal		3.37	3.38	3.26	3.37	3.38	3.26
	EER	Nominal					2.78	2.36	2.20
For combination indoor units + outdoor units	Notes			Condition 1: cooling Ta 35×C - LWE 18×C - heating Ta DB/WB 7×C/6×C - LWC 35×C (DT = 5×C)					
				Condition 2: cooling Ta 35×C - LWE 7×C (DT = 5×C) - heating Ta DB/WB 7×C/6×C - LWC 45×C (DT = 5×C)					

2-2 TECHNICAL SPECIFICATIONS				ERHQ011AA + EKHBH016AA	ERHQ014AA + EKHBH016AA	ERHQ016AA + EKHBH016AA	ERHQ011AA + EKHBX016AA	ERHQ014AA + EKHBX016AA	ERHQ016AA + EKHBX016AA
Casing	Colour			Ivory white					
	Material			Painted galvanised steel plate					
Dimensions	Unit	Height	mm	1170	1170	1170	1170	1170	1170
		Width	mm	900	900	900	900	900	900
		Depth	mm	320	320	320	320	320	320
	Packing	Height	mm	1349	1349	1349	1349	1349	1349
		Width	mm	980	980	980	980	980	980
		Depth	mm	420	420	420	420	420	420
Weight	Unit		kg	103	103	103	103	103	103
	Packed Unit		kg	114	114	114	114	114	114
Packing	Material			EPS					
				Carton					
				Wood					
				PP (Straps)					
	Weight		kg	11	11	11	11	11	11
Heat Exchanger	Dimensions	Length	mm	857	857	857	857	857	857
		Nr of Rows		2	2	2	2	2	2
		Fin Pitch	mm	1.4	1.4	1.4	1.4	1.4	1.4
		Nr of Passes		6	6	6	6	6	6
		Face Area	m²	0.98	0.98	0.98	0.98	0.98	0.98
		Nr of Stages		52	52	52	52	52	52
	Tube type			Hi-XSS(8)					
	Fin	Type		WF fin					
		Treatment		Anti-corrosion treatment (PE)					
Fan	Type			Propeller					
	Quantity			2	2	2	2	2	2
Air Flow Rate (nominal at 230V)	Heating	High	m³/min	90	90	90	90	90	90
	Cooling	High	m³/min				96	100	97

1
2

2 Specifications

2-2 TECHNICAL SPECIFICATIONS				ERHQ011AA + EKHBH016AA	ERHQ014AA + EKHBH016AA	ERHQ016AA + EKHBH016AA	ERHQ011AA + EKHBX016AA	ERHQ014AA + EKHBX016AA	ERHQ016AA + EKHBX016AA
Fan	Discharge direction			Horizontal					
	Motor	Quantity		2	2	2	2	2	2
		Model		Brushless DC motor					
		Output	W	70	70	70	70	70	70
Motor	Speed (nominal)	Steps		8	8	8	8	8	8
		Heating	rpm	760	760	760	760	760	760
		Cooling	rpm				800	850	830
Fan	Motor	Output	W	70	70	70	70	70	70
		Drive		Direct drive					
Compressor	Quantity			1	1	1	1	1	1
	Motor	Model		JT100G-VD					
		Type		Hermetically sealed scroll compressor					
		Motor Output	W	2200	2200	2200	2200	2200	2200
		Starting Method		Inverter driven					
		Crankcase Heater	W	33	33	33	33	33	33
Operation Range	Heating	Min	°CWB	-20	-20	-20	-20	-20	-20
		Max	°CWB	35	35	35	35	35	35
	Cooling	Min	°CDB				10	10	10
		Max	°CDB				46	46	46
	Sanitary water	Min	°CDB	-20	-20	-20	-20	-20	-20
		Max	°CDB	43	43	43	43	43	43
Sound Level (nominal)	Heating	Sound Power	dBA				64	64	66
		Sound Pressure	dBA	49	51	53	49	51	53
	Cooling	Sound Power	dBA				64	66	69
		Sound Pressure	dBA				50	52	54
Sound Level (Night quiet)	Heating	Sound Pressure	dBA	42	42	43	42	42	43
	Cooling	Sound Pressure	dBA				45	45	46
Refrigerant	Type			R-410A					
	Charge		kg	3.7	3.7	3.7	3.7	3.7	3.7
	Control			Expansion valve (electronic type)					
	Nr of Circuits			1	1	1	1	1	1
Refrigerant Oil	Type			Daphne FVC68D					
	Charged Volume		l	1.0	1.0	1.0	1.0	1.0	1.0

2 Specifications

2-2 TECHNICAL SPECIFICATIONS				ERHQ011AA + EKHBH016AA	ERHQ014AA + EKHBH016AA	ERHQ016AA + EKHBH016AA	ERHQ011AA + EKHBX016AA	ERHQ014AA + EKHBX016AA	ERHQ016AA + EKHBX016AA
Piping connections	Liquid (OD)	Quantity		1	1	1	1	1	1
		Type		Flare connection					
		Diameter (OD)	mm	9,52					
	Gas	Quantity		1	1	1	1	1	1
		Type		Flare connection					
		Diameter (OD)	mm	15,9					
	Drain	Quantity		3	3	3	3	3	3
		Type		Hole					
		Diameter (OD)	mm	26	26	26	26	26	26
	Piping Length	Minimum	m	5	5	5	5	5	5
		Maximum	m	75	75	75	75	75	75
		Equivalent	m	95	95	95	95	95	95
		Chargeless	m	30	30	30	30	30	30
	Additional Refrigerant Charge		kg/m	See installation manual outdoor unit 4PW37976-1B					
	Installation height difference	Maximum	m	30	30	30	30	30	30
	Heat Insulation			Both liquid and gas pipes					
Defrost Method				Pressure equalising					
Defrost Control				Sensor for outdoor heat exchanger temperature					
Capacity Control Method				Inverter controlled					
Safety Devices				Fan motor thermal protector					
				Fuse					
				High pressure switch					
Standard Accessories	Item			Tie-wraps					
	Quantity			2	2	2	2	2	2
	Item			Installation manual					
	Quantity			1	1	1	1	1	1
Notes				The sound pressure level is measured via a microphone at a certain distance from the unit. It is a relative value depending on the distance and acoustic environment. Refer to sound spectrum drawing for more information.					
				Down to 3m with recharging of the outdoor unit. Refer to the installation manual of the outdoor unit.					

2-3 ELECTRICAL SPECIFICATIONS				ERHQ011AA + EKHBH016AA	ERHQ014AA + EKHBH016AA	ERHQ016AA + EKHBH016AA	ERHQ011AA + EKHBX016AA	ERHQ014AA + EKHBX016AA	ERHQ016AA + EKHBX016AA
Power Supply	Name			V3					
	Phase			1~					
	Frequency		Hz	50	50	50	50	50	50
	Voltage		V	230	230	230	230	230	230
	Voltage range	Minimum	V	-10%					
		Maximum	V	+10%					
Current	Maximum running Current	Cooling	A				22.8	27.4	31.9
	Recomended fuses		A	32	32	32	32	32	32
Wiring connections	For Power Supply	Remark		See installation manual outdoor unit 4PW37976-1B					
	For connection with indoor	Remark		See installation manual outdoor unit 4PW37976-1B					
Power Supply Intake				Outdoor unit only					

3 Capacity tables

3 - 1 Cooling capacity tables

ERHQ

MAXIMUM COOLING CAPACITY

	Tamb	20		25		30		35		40		45	
	LWE	CC	PI	CC	PI	CC	PI	CC	PI	CC	PI	CC	PI
ERHQ11	7	11,7	2,56	11,2	2,86	10,6	3,21	10,0	3,60	9,39	4,03	8,75	4,50
	10	12,9	2,58	12,3	2,89	11,6	3,25	11,0	3,65	10,3	4,09	9,65	4,58
	13	14,1	2,59	13,4	2,92	12,8	3,29	12,1	3,70	11,3	4,15	10,6	4,65
	15	14,9	2,60	14,2	2,93	13,5	3,31	12,8	3,73	12,0	4,20	11,3	4,70
	18	16,2	2,61	15,5	2,96	14,7	3,35	13,9	3,79	13,1	4,26	12,3	4,78
	22	18,0	2,62	17,2	2,99	16,4	3,40	15,5	3,86	14,7	4,35	13,3	3,93
ERHQ14	7	14,5	3,85	13,9	4,27	13,2	4,75	12,5	5,29	11,7	5,90	11,1	5,92
	10	16,0	3,94	15,3	4,37	14,6	4,86	13,7	5,42	12,9	6,04	11,2	5,46
	13	17,6	4,02	16,8	4,47	15,9	4,98	15,0	5,55	14,1	6,18	11,9	5,04
	15	18,6	4,08	17,8	4,54	16,9	5,06	15,9	5,64	14,9	6,28	12,2	4,79
	18	20,2	4,17	19,3	4,65	18,4	5,18	17,3	5,78	16,2	6,44	12,9	4,42
	22	22,5	4,29	21,5	4,80	20,4	5,36	19,3	5,98	17,0	5,33	13,3	3,93
ERHQ16	7	15,3	4,37	14,7	4,84	13,9	5,37	13,1	5,95	12,2	6,59	11,1	5,92
	10	16,9	4,48	16,2	4,97	15,3	5,51	14,4	6,11	13,3	6,75	11,2	5,46
	13	18,5	4,60	17,7	5,10	16,7	5,66	15,7	6,27	14,6	6,93	11,9	5,04
	15	19,6	4,68	18,7	5,19	17,7	5,76	16,6	6,38	15,4	7,04	12,2	4,79
	18	21,0	4,97	20,0	5,52	18,9	6,12	17,8	6,77	16,4	6,69	12,9	4,42
	22	23,3	5,21	22,2	5,79	21,0	6,42	19,7	7,10	17,0	5,33	13,3	3,93

Symbols

CC	Cooling capacity at maximum operating frequency, measured acc. Eurovent 6/C/003-2006 [kW]
HC	Heating capacity at maximum operating frequency, measured acc. Eurovent 6/C/003-2006 [kW]
PI	Power input [kW], measured acc. Eurovent 6/C/003-2006 [kW]
LWE	Leaving Water Evaporator temperature [°C]
LWC	Leaving Water Condensor temperature [°C]
Tamb	Ambient temperature [°C] RH=85%

Conditions

1. Cooling capacity
   Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for chilled water range D1= 3-8°C
2. Heating capacity
   Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for chilled water range D1= 3-8°C
3. Power input
   Power input is total input of indoor and outdoor unit, except the circulation pump; according to Eurovent rating standard 6/C/003-2006
   Pump power input to be added=90W (according EN14511)

3TW57752-1

3 Capacity tables

3 - 2 Heating capacity tables

ERHQ

MAXIMUM HEATING CAPACITY - PEAK VALUES

	LWC	30		35		40		45		50		55	
	Tamb	HC	PI	HC	PI	HC	PI	HC	PI	HC	PI	HC	PI
ERHQ11	-20	5,66	2,17	5,48	2,37	5,44	2,61						
	-15	6,48	2,21	6,25	2,42	6,17	2,67						
	-7	8,04	2,24	7,74	2,46	7,63	2,72	7,50	3,02				
	-2	9,18	2,24	8,84	2,47	8,71	2,74	8,57	3,05	8,18	3,36		
	2	10,2	2,23	9,81	2,47	9,68	2,74	9,52	3,06	9,10	3,38	8,72	3,77
	7	11,6	2,21	11,2	2,46	10,8	2,74	10,3	3,06	9,94	3,42	9,53	3,82
	12	13,1	2,18	12,7	2,43	12,2	2,72	11,8	3,04	11,3	3,41	10,9	3,81
	15	14,1	2,15	13,6	2,41	13,2	2,70	12,7	3,03	12,2	3,40	11,7	3,81
	20	15,9	2,10	15,4	2,36	14,9	2,65	14,4	2,99	13,8	3,37	13,3	3,78
ERHQ14	-20	7,24	2,72	7,14	2,97	7,05	3,26						
	-15	8,19	2,78	8,01	3,04	7,85	3,34						
	-7	10,1	2,84	9,78	3,11	9,51	3,43	9,25	3,79				
	-2	11,5	2,87	11,1	3,14	11,1	3,47	10,7	3,74	10,4	4,14		
	2	12,7	2,87	12,3	3,16	12,2	3,49	11,8	3,76	11,4	4,17	11,1	4,62
	7	14,4	2,88	14,0	3,17	13,5	3,50	13,1	3,88	12,7	4,30	12,3	4,77
	12	16,3	2,86	15,9	3,16	15,4	3,50	14,9	3,89	14,4	4,32	13,9	4,79
	15	17,6	2,85	17,1	3,15	16,5	3,50	16,0	3,89	15,5	4,32	15,0	4,80
	20	19,9	2,82	19,3	3,13	18,7	3,48	18,1	3,87	17,5	4,31	17,0	4,80
ERHQ16	-20	8,35	3,25	8,31	3,54	8,27	3,89						
	-15	9,38	3,33	9,33	3,63	9,28	3,98						
	-7	11,5	3,42	11,3	3,73	11,1	4,10	10,9	4,52				
	-2	13,0	3,46	12,7	3,78	12,5	4,15	12,2	4,58	12,0	5,06		
	2	14,4	3,48	14,1	3,81	13,8	4,19	13,5	4,62	13,1	5,11	11,9	5,35
	7	16,3	3,50	16,0	3,83	15,6	4,22	15,2	4,66	14,8	5,15	13,4	5,40
	12	18,5	3,51	18,1	3,85	17,6	4,24	17,2	4,69	16,7	5,18	15,1	5,44
	15	20,0	3,51	19,5	3,86	19,0	4,25	18,5	4,69	18,0	5,20	16,6	5,75
	20	22,5	3,50	22,0	3,85	21,4	4,25	20,8	4,70	20,3	5,21	18,7	5,77

MAXIMUM HEATING CAPACITY - INTEGRATED VALUE

	LWC	30		35		40		45		50		55	
	Tamb	HC	PI	HC	PI	HC	PI	HC	PI	HC	PI	HC	PI
ERHQ11	-20	5,04	2,17	4,88	2,37	4,84	2,61						
	-15	5,77	2,21	5,56	2,42	5,49	2,67						
	-7	6,89	2,24	6,63	2,46	6,54	2,72	6,43	3,02				
	-2	7,43	2,11	7,16	2,33	7,06	2,58	6,94	2,87	6,63	3,17		
	2	8,16	2,16	7,86	2,39	7,75	2,65	7,63	2,96	7,29	3,26	6,99	3,64
	7	11,6	2,21	11,2	2,46	10,8	2,74	10,3	3,06	9,94	3,42	9,53	3,82
	12	13,1	2,18	12,7	2,43	12,2	2,72	11,8	3,04	11,3	3,41	10,9	3,81
	15	14,1	2,15	13,6	2,41	13,2	2,70	12,7	3,03	12,2	3,40	11,7	3,81
	20	15,9	2,10	15,4	2,36	14,9	2,65	14,4	2,99	13,8	3,37	13,3	3,78
ERHQ14	-20	6,45	2,72	6,35	2,97	6,28	3,26						
	-15	7,29	2,78	7,13	3,04	6,99	3,34						
	-7	8,06	2,84	7,84	3,11	7,62	3,43	7,42	3,79				
	-2	9,27	2,70	9,00	2,96	8,95	3,26	8,65	3,52	8,38	3,90		
	2	10,0	2,78	9,71	3,05	9,65	3,37	9,32	3,64	9,02	4,03	8,73	4,47
	7	14,4	2,88	14,0	3,17	13,5	3,50	13,1	3,88	12,7	4,30	12,3	4,77
	12	16,3	2,86	15,9	3,16	15,4	3,50	14,9	3,89	14,4	4,32	13,9	4,79
	15	17,6	2,85	17,1	3,15	16,5	3,50	16,0	3,89	15,5	4,32	15,0	4,80
	20	19,9	2,82	19,3	3,13	18,7	3,48	18,1	3,87	17,5	4,31	17,0	4,80
ERHQ16	-20	7,44	3,25	7,39	3,54	7,36	3,89						
	-15	8,35	3,33	8,30	3,63	8,26	3,98						
	-7	8,91	3,34	8,77	3,64	8,63	4,00	8,49	4,41				
	-2	10,5	3,26	10,3	3,56	10,1	3,91	9,91	4,31	9,71	4,77		
	2	11,1	3,15	10,9	3,45	10,6	3,79	10,4	4,18	10,2	4,62	9,19	4,84
	7	16,3	3,50	16,0	3,83	15,6	4,22	15,2	4,66	14,8	5,15	13,4	5,40
	12	18,5	3,51	18,1	3,85	17,6	4,24	17,2	4,69	16,7	5,18	15,1	5,44
	15	20,0	3,51	19,5	3,86	19,0	4,25	18,5	4,69	18,0	5,20	16,6	5,75
	20	22,5	3,50	22,0	3,85	21,4	4,25	20,8	4,70	20,3	5,21	18,7	5,77

Symbols

CC	Cooling capacity at maximum operating frequency, measured acc. Eurovent 6/C/003-2006 [kW]
HC	Heating capacity at maximum operating frequency, measured acc. Eurovent 6/C/003-2006 [kW]
PI	Power input [kW], measured acc. Eurovent 6/C/003-2006 [kW]
LWE	Leaving Water Evaporator temperature [°C]
LWC	Leaving Water Condensor temperature [°C]
Tamb	Ambient temperature [°C] RH=85%

Conditions

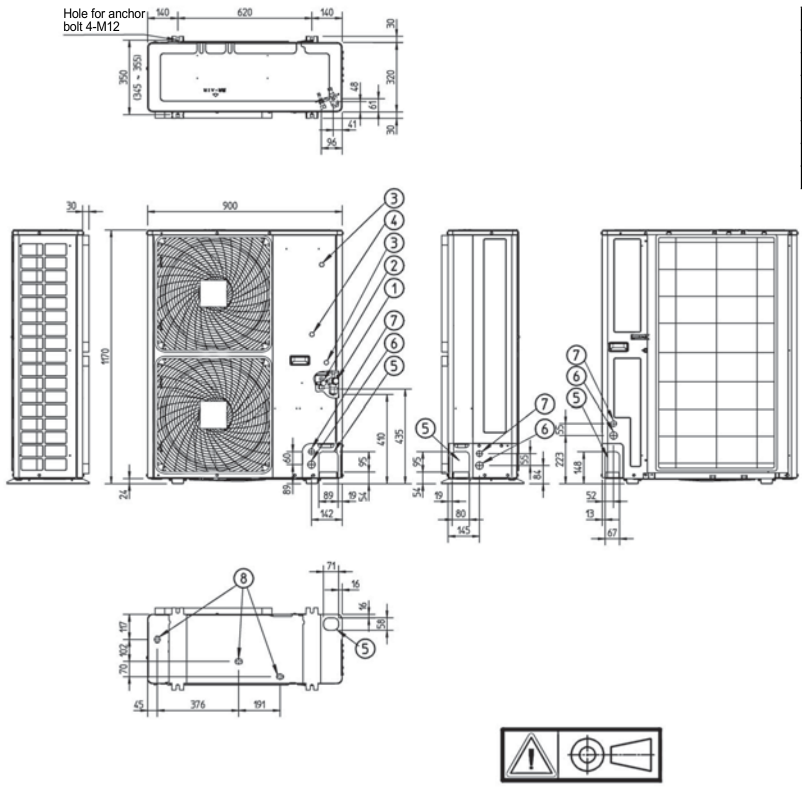
1. Cooling capacity
   Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for chilled water range D1= 3-8°C
2. Heating capacity
   Capacity is according to Eurovent rating standard 6/C/003-2006 and valid for chilled water range D1= 3-8°C
3. Power input
   Power input is total input of indoor and outdoor unit, except the circulation pump; according to Eurovent rating standard 6/C/003-2006
   Pump power input to be added=90W (according EN14511)

3TW57752-1

4 Dimensional drawing & centre of gravity

4 - 1 Dimensional drawing

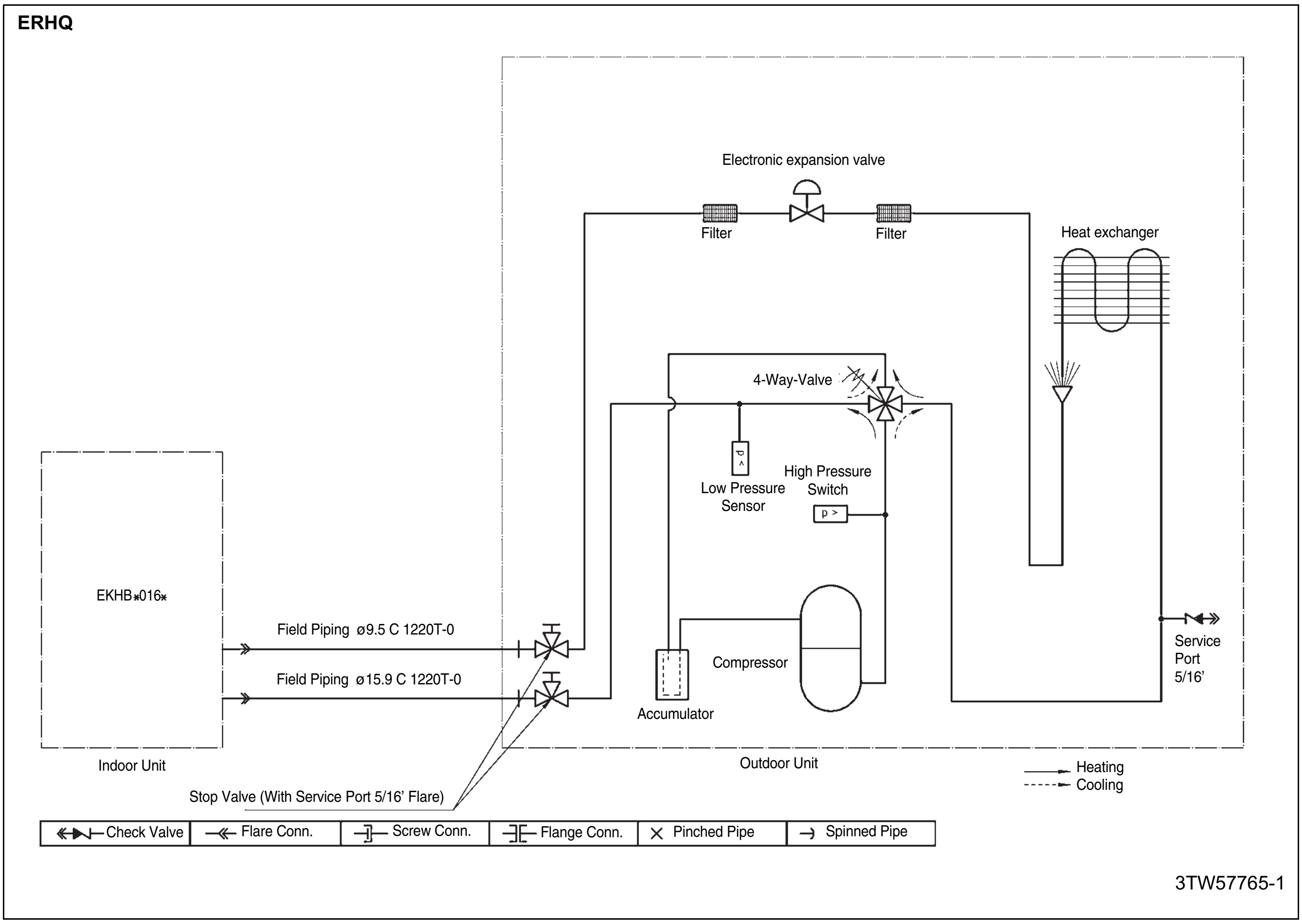
ERHQ011-016



1	Gas pipe connection ∅15.9 flare
2	Liquid pipe connection ∅9.5 flare
3	Service port (in the unit)
4	Grounding terminal M5 (in switch box)
5	Refrigerant piping intake
6	Power supply wiring intake (knock out hole ∅34)
7	control wiring intake (knock out hole ∅27)
8	Drain outlet

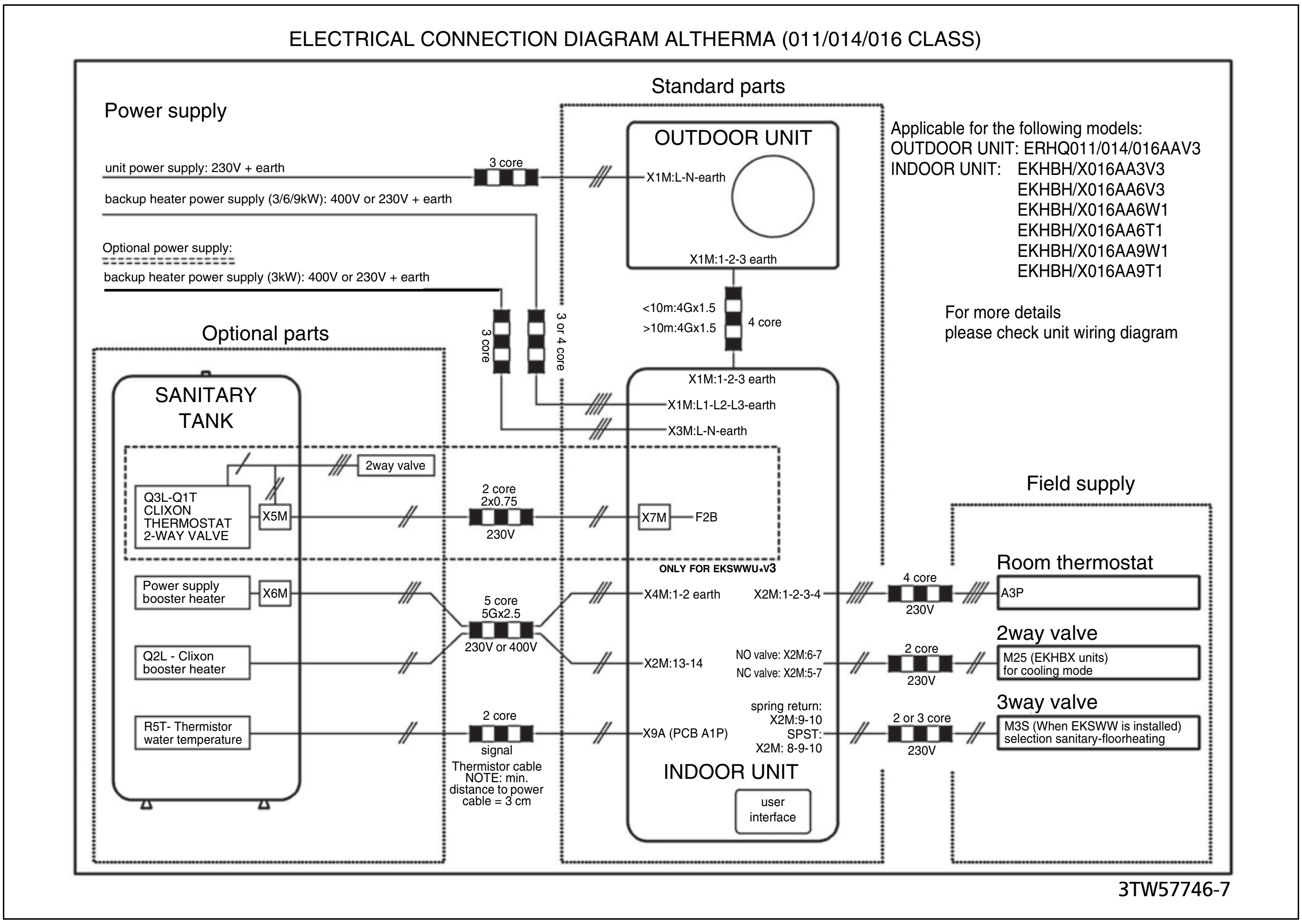
3TW57764-1

5 Piping diagram



6 Wiring diagram

6 - 1 External connection diagram

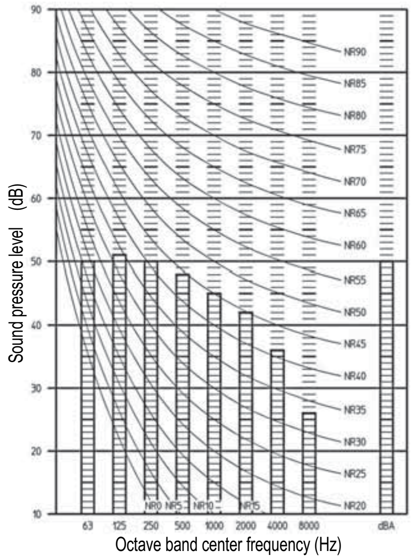


7 Sound data

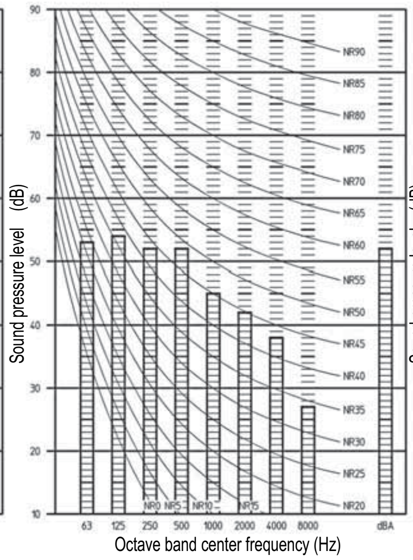
7 - 1 Sound pressure spectrum

ERHQ011-016

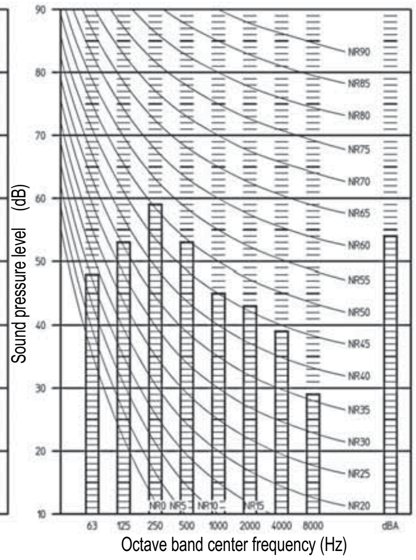
ERHQ011AAV3
COOLING



ERHQ014AAV3
COOLING



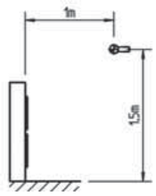
ERHQ016AAV3
COOLING



3TW57767-1A

NOTES

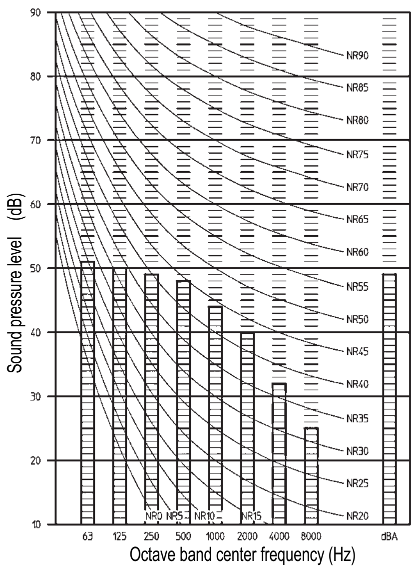
1 Data is valid at free field condition (measured in a semi-anachoic room).
2 dBA = A-Weighted sound pressure level. (A-scale according to IEC)
3 Reference acoustic pressure 0dB = 20µPa.
4 If sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections.



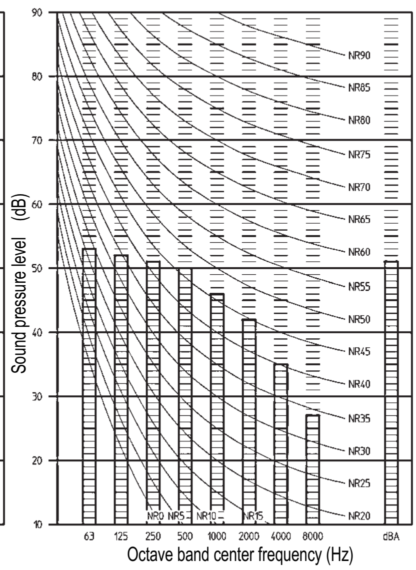
Measuring location
(Discharge side)

ERHQ011-016

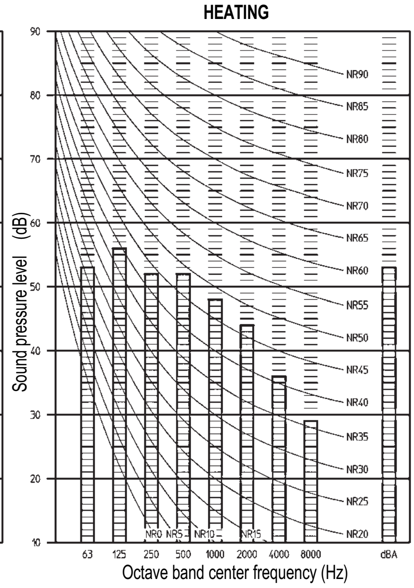
ERHQ011AAV3
HEATING



ERHQ014AAV3
HEATING



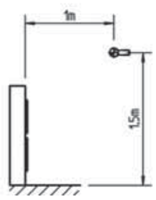
ERHQ016AAV3
HEATING



3TW57767-2A

NOTES

1 Data is valid at free field condition (measured in a semi-anachoic room).
2 dBA = A-Weighted sound pressure level. (A-scale according to IEC)
3 Reference acoustic pressure 0dB = 20µPa.
4 If sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections.



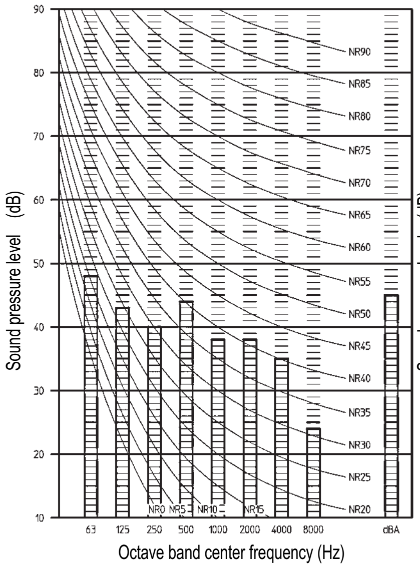
Measuring location
(Discharge side)

7 Sound data

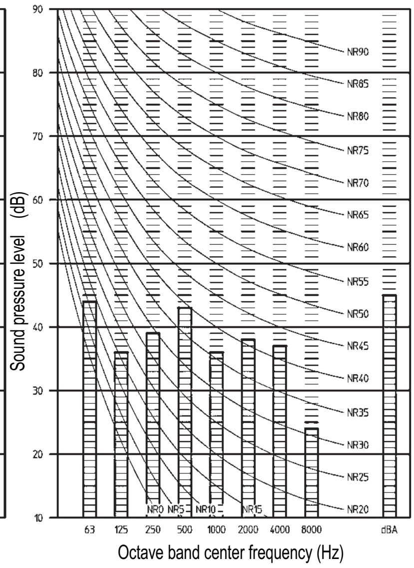
7 - 1 Sound pressure spectrum

ERHQ011-016

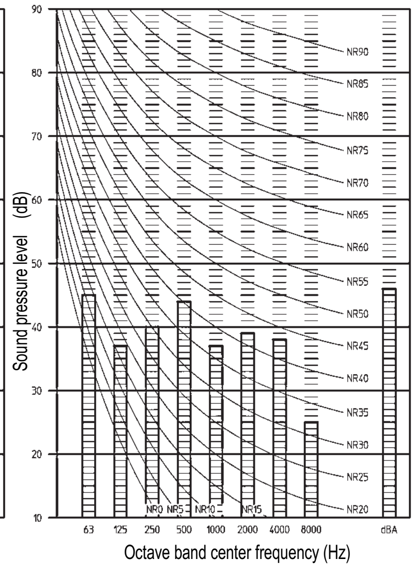
ERHQ011AAV3
COOLING



ERHQ014AAV3
COOLING



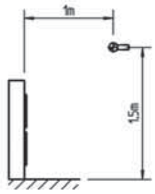
ERHQ016AAV3
COOLING



3TW57767-3

NOTES

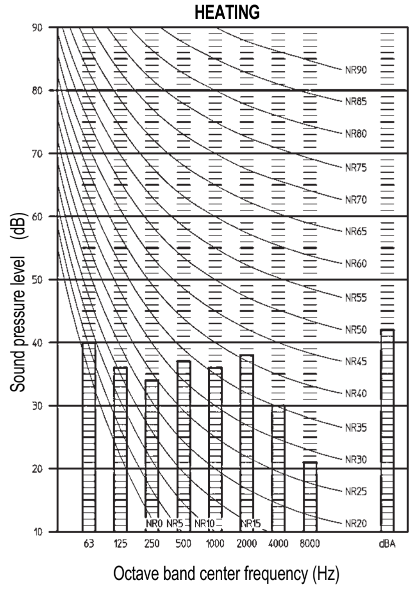
1 Data is valid at free field condition (measured in a semi-anachoic room).
2 dBA = A-Weighted sound pressure level. (A-scale according to IEC)
3 Reference acoustic pressure 0dB = 20μPa.
4 If sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections.



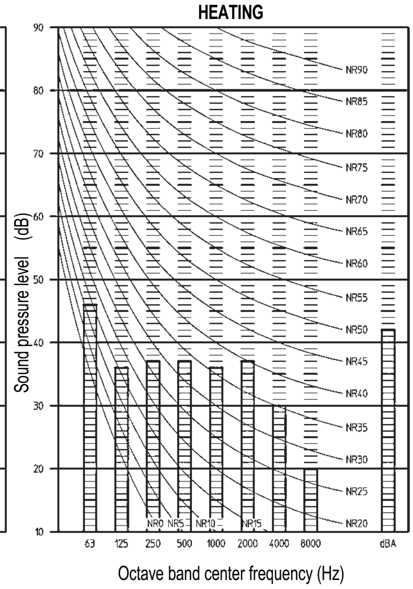
Measuring location
(Discharge side)

ERHQ011-016

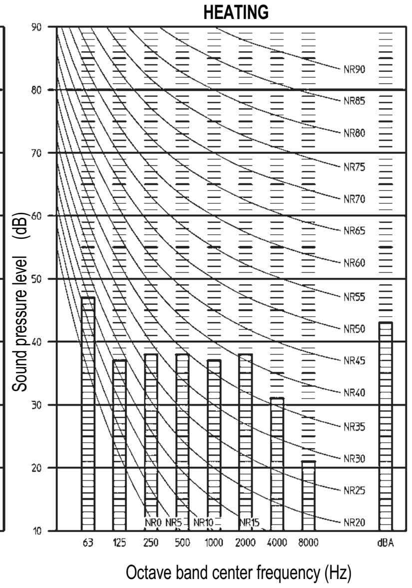
ERHQ011AAV3
HEATING



ERHQ014AAV3
HEATING



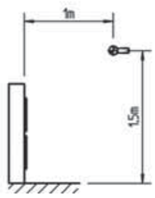
ERHQ016AAV3
HEATING



3TW57767-4

NOTES

1 Data is valid at free field condition (measured in a semi-anachoic room).
2 dBA = A-Weighted sound pressure level. (A-scale according to IEC)
3 Reference acoustic pressure 0dB = 20μPa.
4 If sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections.



Measuring location
(Discharge side)

TABLE OF CONTENTS
EKHBH

1 Features

- Cost effective alternative to a fossil fuel boiler
- Low energy bills and low CO_2 emissions
- Easy to install
- Total solution for year round comfort



2 Specifications

2-1 TECHNICAL SPECIFICATIONS				EKHBH007AC + ERYQ005AC	EKHBH007AC + ERYQ006AC	EKHBH007AC + ERYQ007AC	EKHBH016AA + ERHQ011AAV3	EKHBH016AA + ERHQ014AAV3	EKHBH016AA + ERHQ016AAV3
Outdoor units				ERYQ005ACV3	ERYQ006ACV3	ERYQ007ACV3	ERHQ011AAV3	ERHQ014AAV3	ERHQ016AAV3
Nominal input (Indoor only)			W	230	230	230	230	230	230
Casing	Colour			RAL9010					
	Material			Epoxy polyester painted galvanised steel					
Dimensions	Packing	Height	mm	1225	1225	1225	1225	1225	1225
		Width	mm	660	660	660	660	660	660
		Depth	mm	595	595	595	610	610	610
	Unit	Height	mm	895	895	895	922	922	922
		Width	mm	487	487	487	502	502	502
		Depth	mm	361	361	361	361	361	361
Weight	Unit		kg	55	55	55	55	55	55
	Packed Unit		kg	65	65	65	65	65	65
Packing	Material			EPS					
				Wood					
				Carton					
				PS (straps)	PS (straps)	PS (straps)	PP (Straps)	PP (Straps)	PP (Straps)
	Weight		kg	10	10	10	10	10	10
Main components	Pump	Type		Water cooled					
		Nr. of speed		3	3	3	2	2	2
Pump	Nominal ESP unit	Heating	kPa	46.5	40.1	29.0	52.5	43.5	35.0
Main components	Pump	Power input	W	130	130	130	210	210	210
	Water side Heat exchanger	Type		Brazed plate					
		Qty		1	1	1	1	1	1
		Water volume	l	0.67	0.67	0.67	1.01	1.01	1.01
		Water flow rate Min.	l/min	12	12	12	16	16	16
Water side Heat exchanger	Water flow rate Nom.	Heating	l/min	16.5	19.6	24.1	32.1	40.1	45.9
Main components	Water side Heat exchanger	Water flow rate Max.	l/min				58	58	58
		Insulation material		Polyurethane foam					
	Expansion vessel	Volume	l	10	10	10	10	10	10
		Max. water pressure	bar	3	3	3	3	3	3
		Pre pressure	bar	1	1	1	1	1	1
	Water filter	Diameter perforations	mm	1	1	1	1	1	1
		Material		Brass					
Water circuit	Piping connections diameter		inch	1”MBSP	1”MBSP	1”MBSP	1-1/4” MBSP	1-1/4” MBSP	1-1/4” MBSP
	Piping		inch	1”MBSP	1”MBSP	1”MBSP	1-1/4”	1-1/4”	1-1/4”
	Safety valve		bar	3	3	3	3	3	3
	Manometer			Yes					
	Drain valve / Fill valve			Yes					
	Shut off valve			Yes					
	Air purge valve			Yes					
	Total water volume (6)		l				5.5	5.5	5.5
Refrigerant Circuit	Gas side diameter		mm	15,9					
	Liquid side diameter		mm	6,35	6,35	6,35	9,52	9,52	9,52
Sound Level	Sound Pressure		dBA	28	28	28	28	28	28
Operation range	Ambient	Heating	°C				-20~35	-20~35	-20~35
	Waterside	Heating	°C	25 - 55	25 - 55	25 - 55	15~55	15~55	15~55

2 Specifications

2-1 TECHNICAL SPECIFICATIONS	EKHBH007AC + ERYQ005AC	EKHBH007AC + ERYQ006AC	EKHBH007AC + ERYQ007AC	EKHBH016AA + ERHQ011AAV3	EKHBH016AA + ERHQ014AAV3	EKHBH016AA + ERHQ016AAV3
Notes	The sound pressure level is measured via a microphone at a certain distance from the unit. It is a relative value, depending on the distance and acoustic environment.			With option kit EKHBDP installed: Height=936mm		
	The sound pressure level is valid for pump medium speed.			Tamb 35°C - LWE 7°C (DT=5°C)		
	Tamb 35°C - LWE 7°C (DT=5°C)			DB/WB 7°C/6°C-LWC 35°C(DT=5°C)		
	DB/WB 7°C/6°C-LWC 35°C(DT=5°C)			The sound pressure level is measured via a microphone at 1m from the unit. It is a relative acoustic environment. The sound pressure level mentioned is valid for pump medium speed.		
				15×C-25×C: BUH only, no Heatpump operation=during commissioning.		
				Including piping+PHE+backup heater/excluding expansion vessel.		

2-2 ELECTRICAL SPECIFICATIONS				EKHBH007AC + ERYQ005AC	EKHBH007AC + ERYQ006AC	EKHBH007AC + ERYQ007AC	EKHBH016AA + ERHQ011AAV3	EKHBH016AA + ERHQ014AAV3	EKHBH016AA + ERHQ016AAV3
Electric heater	Type			No backup heater					
Electric heater	Type			3V3					
	Power Supply	Phase		1~					
		Frequency	Hz	50	50	50	50	50	50
		Voltage	V	230	230	230	230	230	230
	Current	Running Current	A	13	13	13	13	13	13
	Voltage range	Minimum					-10%	-10%	-10%
		Maximum					+10%	+10%	+10%
Wiring connections	For power supply backup heater	Quantity of wires					3G	3G	3G
		Type of wires					Select diameter and type according to national and local regulations		
Electric heater	Type			6V3					
	Power Supply	Phase		1~					
		Frequency	Hz	50	50	50	50	50	50
		Voltage	V	230	230	230	230	230	230
	Current	Running Current	A	26	26	26	26	26	26
	Voltage range	Minimum					-10%	-10%	-10%
		Maximum					+10%	+10%	+10%
Wiring connections	For power supply backup heater	Quantity of wires					3G	3G	3G
		Type of wires					Select diameter and type according to national and local regulations		
Electric heater	Type			6W1	6W1	6W1	6WN	6WN	6WN
	Power Supply	Phase		3N~	3N~	3N~	3~	3~	3~
		Frequency	Hz	50	50	50	50	50	50
		Voltage	V	400	400	400	400	400	400
	Current	Running Current	A	8.6	8.6	8.6	8.7	8.7	8.7
	Voltage range	Minimum					-10%	-10%	-10%
		Maximum					+10%	+10%	+10%
Wiring connections	For power supply backup heater	Quantity of wires					4G	4G	4G
		Type of wires					Select diameter and type according to national and local regulations		
Electric heater	Type			6T1					
	Power Supply	Phase		3~					
		Frequency	Hz	50	50	50	50	50	50
		Voltage	V	230	230	230	230	230	230
	Current	Running Current	A	15	15	15	15.1	15.1	15.1
	Voltage range	Minimum					-10%	-10%	-10%
		Maximum					+10%	+10%	+10%

2 Specifications

2-2 ELECTRICAL SPECIFICATIONS				EKHBH007AC + ERYQ005AC	EKHBH007AC + ERYQ006AC	EKHBH007AC + ERYQ007AC	EKHBH016AA + ERHQ011AAV3	EKHBH016AA + ERHQ014AAV3	EKHBH016AA + ERHQ016AAV3
Wiring connections	For power supply backup heater	Quantity of wires					4G	4G	4G
		Type of wires					Select diameter and type according to national and local regulations		
Electric heater	Type			9W1	9W1	9W1	9WN	9WN	9WN
	Power Supply	Phase		3N~	3N~	3N~	3~	3~	3~
		Frequency	Hz	50	50	50	50	50	50
		Voltage	V	400	400	400	40	400	400
	Current	Running Current	A	13	13	13	13	13	13
	Voltage range	Minimum					-10%	-10%	-10%
		Maximum					+10%	+10%	+10%
Wiring connections	For power supply backup heater	Quantity of wires					4G	4G	4G
		Type of wires					Select diameter and type according to national and local regulations		
Electric heater	Type			9T1					
	Power Supply	Phase		3~					
		Frequency	Hz	50	50	50	50	50	50
		Voltage	V	230	230	230	230	230	230
	Current	Running Current	A	23	23	23	22.6	22.6	22.6
	Voltage range	Minimum					-10%	-10%	-10%
		Maximum					+10%	+10%	+10%

2 Specifications

2-2 ELECTRICAL SPECIFICATIONS			EKHBH007AC + ERYQ005AC	EKHBH007AC + ERYQ006AC	EKHBH007AC + ERYQ007AC	EKHBH016AA + ERHQ011AAV3	EKHBH016AA + ERHQ014AAV3	EKHBH016AA + ERHQ016AAV3
Wiring connections	For power supply backup heater	Quantity of wires				4G	4G	4G
		Type of wires				Select diameter and type according to national and local regulations		
	Connection type					For power supply connection to Optional Warm Water Tank + Q2L		
	Quantity of wires					3G	3G	3G
	Type of wires					Select diameter and type according to national and local regulations		
	Connection type					For power supply connection to Optional Warm Water Tank + Q2L		
	Quantity of wires					3G	3G	3G
	Type of wires					For more details of the voltage range and current refer to installation manual EKHBH/X016AA*		
	Connection type					For connection with R5T		
	Quantity of wires					Wire included in option EKSWW*		
	Type of wires					Wire included in option EKSWW*		
	Connection type					For connection with A3P		
	Quantity of wires					Depends on thermostat type, refr to installation manual EKHBH/X016AA*		
	Type of wires					Select diameter and type according to national and local regulations		
	Connection type					For connection with A3P		
	Quantity of wires					Depends on thermostat type, refr to installation manual EKHBH/X016AA*		
	Type of wires					Voltage: 230V/Maximum current: 100mA/Minimum 0,75 mm²		
	Connection type					For connection with M2S		
	Quantity of wires					3G	3G	3G
	Type of wires					Select diameter and type according to national and local regulations		
	Connection type					For connection with M2S		
	Quantity of wires					3G	3G	3G
	Type of wires					Voltage: 230V/Maximum current: 100mA/Minimum 0,75 mm²		
	Connection type					For connection with M3S		
	Quantity of wires					3G or 4G	3G or 4G	3G or 4G
	Type of wires					Select diameter and type according to national and local regulations		
	Connection type					For connection with M3S		
	Quantity of wires					3G or 4G	3G or 4G	3G or 4G
	Type of wires					Voltage: 230V/Maximum current: 100mA/Minimum 0,75 mm²		
Notes			Optional electric heater has 2 capacity steps except for the 3V3 model which has only 1 capacity step.					
			For 6W1 and 9W1 models, neutral line only required for optional booster heater power supply.					
			Model without optional back up heater is powered via outdoor unit.					

3 Options

Optional equipment for EKHB(H/X)007AC*

Reference	Description	Number							Availability
	Heating only model **Reversible model**	EKHBH007AC EKHBX007AC	EKHBH007AC3V3 EKHBX007AC3V3	EKHBH007AC6V3 EKHBX007AC6V3	EKHBH007AC6W1 EKHBX007AC6W1	EKHBH007AC6T1 EKHBX007AC6T1	EKHBH007AC9W1 EKHBX007AC9W1	EKHBH007AC9T1 EKHBX007AC9T1	
	Available options								
3V3	Back up heater 3kW 1~230 V	—	○	—	—	—	—	—	Factory mounted
6V3	Back up heater 6kW 1~230 V	—	—	○	—	—	—	—	Factory mounted
6W1	Back up heater 6kW 3~400 V + N	—	—	—	○	—	—	—	Factory mounted
6T1	Back up heater 6kW 3~230 V	—	—	—	—	○	—	—	Factory mounted
9W1	Back up heater 9kW 3~400 V + N	—	—	—	—	—	○	—	Factory mounted
9T1	Back up heater 9kW 3~230 V	—	—	—	—	—	—	○	Factory mounted
	Available kits								
EKSWW150V3	Sanitary warm water tank 150 l 230 V	○	○	○	○	○	○	○	Kit
EKSWW200V3	Sanitary warm water tank 200 l 230 V	○	○	○	○	○	○	○	Kit
EKSWW300V3	Sanitary warm water tank 300 l 230 V	○	○	○	○	○	○	○	Kit
EKSWW200Z2	Sanitary warm water tank 200 l 400 V	—	—	—	○	—	○	—	Kit
EKSWW300Z2	Sanitary warm water tank 300 l 400 V	—	—	—	○	—	○	—	Kit
EKSWWU150V3	Sanitary warm water tank 150 l 230 V	○	○	○	○	○	○	○	Kit
EKSWWU200V3	Sanitary warm water tank 200 l 230 V	○	○	○	○	○	○	○	Kit
EKSWWU300V3	Sanitary warm water tank 300 l 230 V	○	○	○	○	○	○	○	Kit
EKWBSWW150	Wall bracket for EKSWW150V3								Kit
EKUSWW	Option kit for UK EKSWWU150~300V3								Kit

Note:
An EKHB (H/X) 007**AC*** indoor unit can only be connected to an outdoor unit ERYQ005~007**AC***

3TW57559-5

2
3

3 Options

EKHBH(X)016

Factory mounted optional equipment for EKHB(H/X)016AA**

Reference		Description												
		Heating only model EKHBH016A....	A3V3		A6V3		A6WN		A6T1		A9WN		A9T1	
		Reversible model EKHBX016A....		A3V3		A6V3		A6WN		A6T1		A9WN		A9T1
**														
3V3		Back up heater 3kW 1~230V	0	0	-	-	-	-	-	-	-	-	-	-
6V3		Back up heater 6kW 1~230V	-	-	0	0	-	-	-	-	-	-	-	-
6WN		Back up heater 6kW 3~400V	-	-	-	-	0	0	-	-	-	-	-	-
6T1		Back up heater 6kW 3~230V	-	-	-	-	-	-	0	0	-	-	-	-
9WN		Back up heater 9kW 3~400V	-	-	-	-	-	-	-	-	0	0	-	-
9T1		Back up heater 9kW 3~230V	-	-	-	-	-	-	-	-	-	-	0	0

Outdoor combination table for EKHB(H/X)016AA**

Reference	Description	ERHQ011AAV3	ERHQ014AAV3	ERHQ016AAV3
EKHBH016AA*	Heating only indoor unit	0	0	0
EKHBX016AA*	Reversible indoor unit	0	0	0

Kit availability for EKHB(H/X)016AA*

Reference	Description												
	Heating only model EKHBH016A....	A3V3		A6V3		A6WN		A6T1		A9WN		A9T1	
	Reversible indoor unit		A3V3		A6V3		A6WN		A6T1		A9WN		A9T1
EKSWW150V3	Sanitary warm water tank 150l 1~230V	0	0	0	0	0(*)	0(*)	0	0	0(*)	0(*)	0	0
EKSWW200V3	Sanitary warm water tank 200l 1~230V	0	0	0	0	0(*)	0(*)	0	0	0(*)	0(*)	0	0
EKSWW300V3	Sanitary warm water tank 300l 1~230V	0	0	0	0	0(*)	0(*)	0	0	0(*)	0(*)	0	0
EKSWW200Z2	Sanitary warm water tank 200l 2~400V	-	-	-	-	0	0	-	-	0	0	-	-
EKSWW300Z2	Sanitary warm water tank 300l 2~400V	-	-	-	-	0	0	-	-	0	0	-	-
EKSWWU150V3	Sanitary warm water tank 150l 1~230V	0	0	0	0	0(*)	0(*)	0	0	0(*)	0(*)	0	0
EKSWWU200V3	Sanitary warm water tank 200l 2~230V	0	0	0	0	0(*)	0(*)	0	0	0(*)	0(*)	0	0
EKSWWU300V3	Sanitary warm water tank 300l 2~230V	0	0	0	0	0(*)	0(*)	0	0	0(*)	0(*)	0	0
EKHBDP	Option kit for condensate free cooling operation	-	0	-	0	-	0	-	0	-	0	-	0

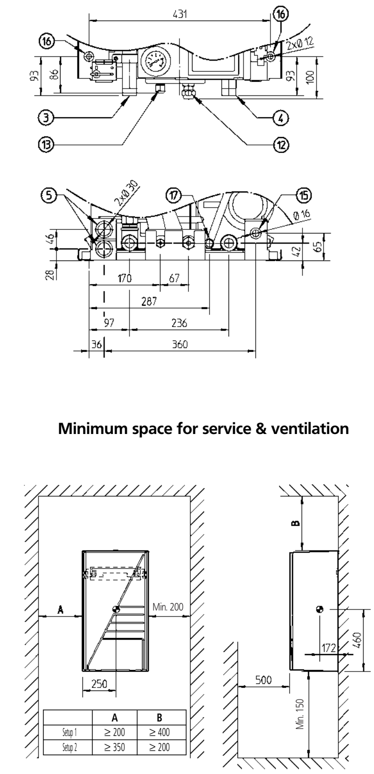
*if neutral line is available

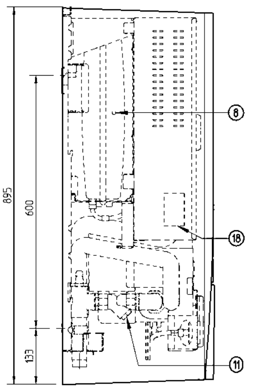
3TW57759-2A

4 Dimensional drawing & centre of gravity

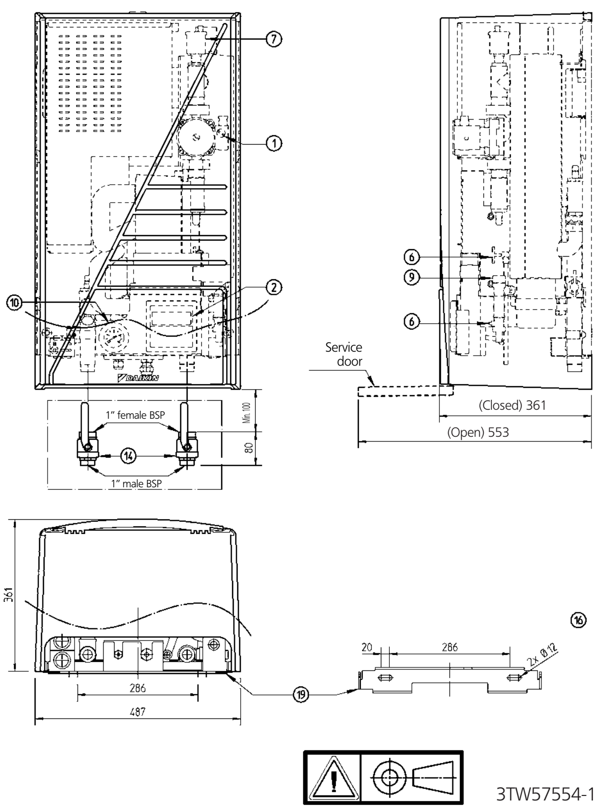
4 - 1 Dimensional drawing

EKHBH-AC



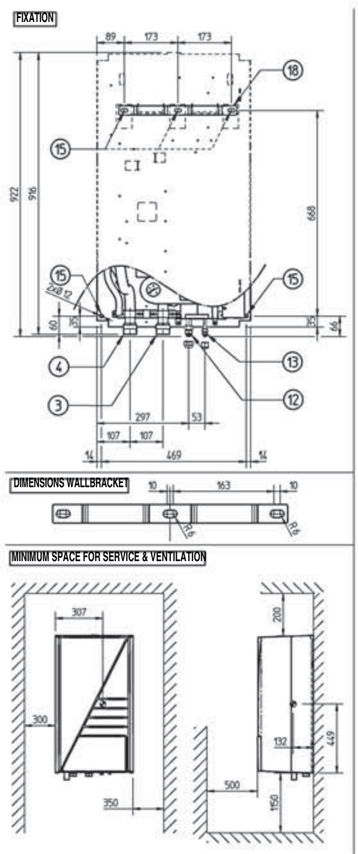


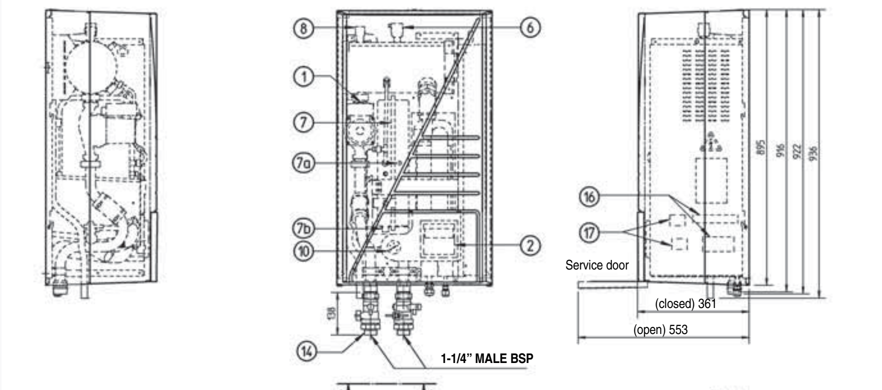
- Centre of gravity
- ① Pump + switch for speed setting
- ② Remocon
- ③ Water IN conection 1" M BSP
- ④ Water OUT connection 1" M BSP
- ⑤ Power supply intake (+ sanitary warm water tank)
- ⑥ Drain / fill valve
- ⑦ Air purge
- ⑧ Expansion vessel + nipple
- ⑨ Blow off valve
- ⑩ Pressure gauge
- ⑪ Water filter
- ⑫ Suction pipe connection ϕ 15.9 flare connection
- ⑬ Liquid pipe connection ϕ 6.35 flare connection
- ⑭ Shut off valves (delivered with unit)
- ⑮ Thermistor connection (+ sanitary warm water tank)
- ⑯ Holes for fixation
- ⑰ Blow off drain / drain of drainpan
- ⑱ Switchbox connection terminals
- ⑲ Wallbracket

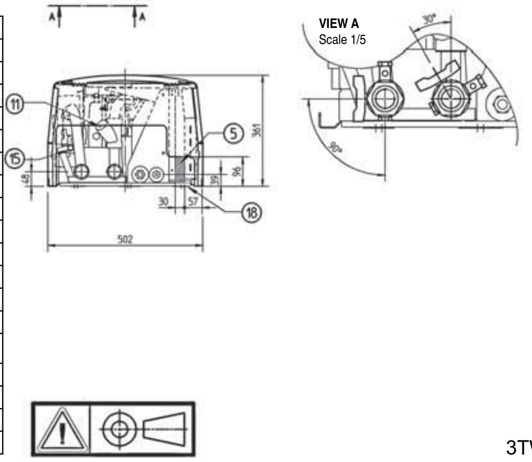


3TW57554-1A

EKHBH016A





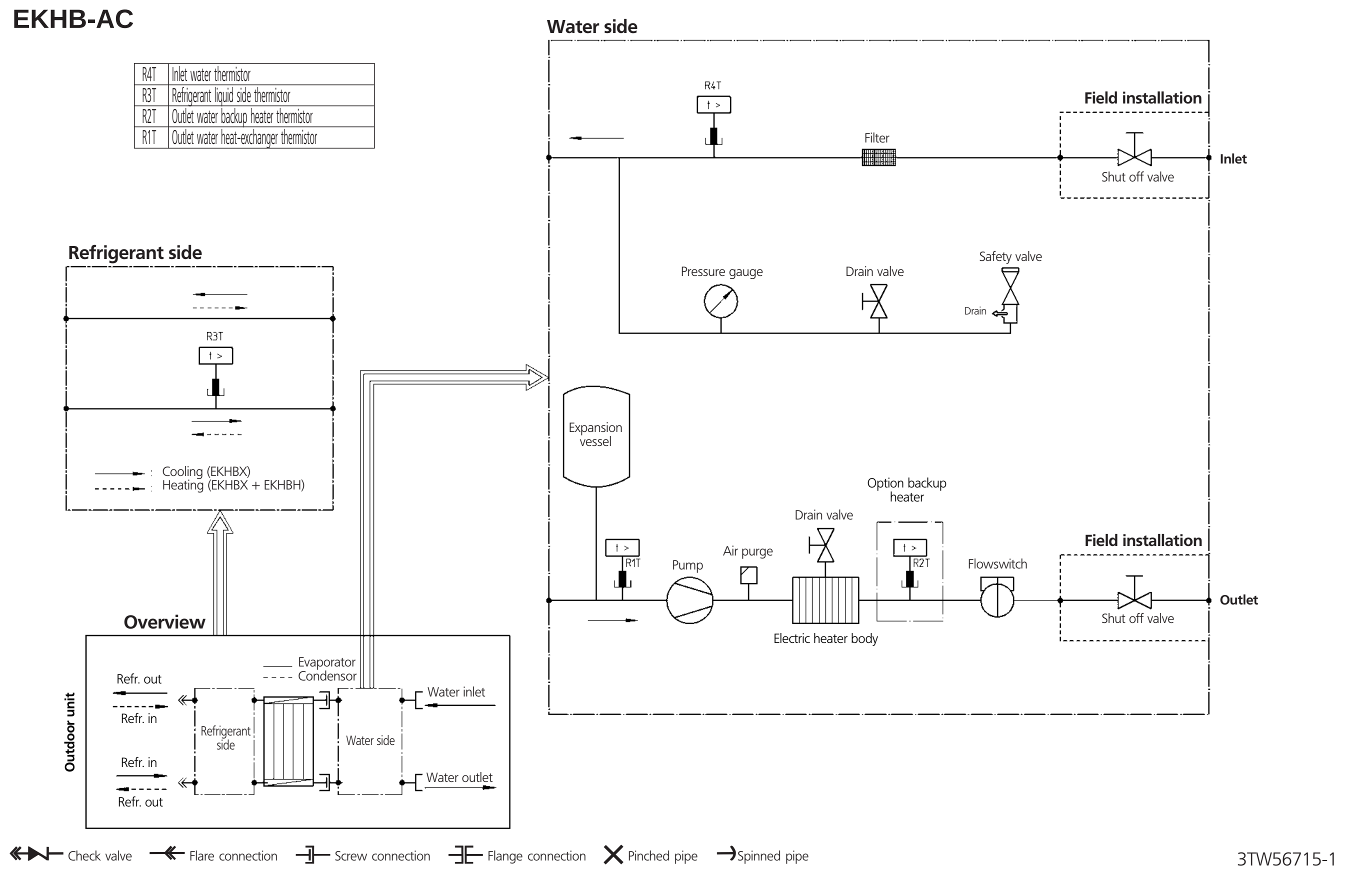


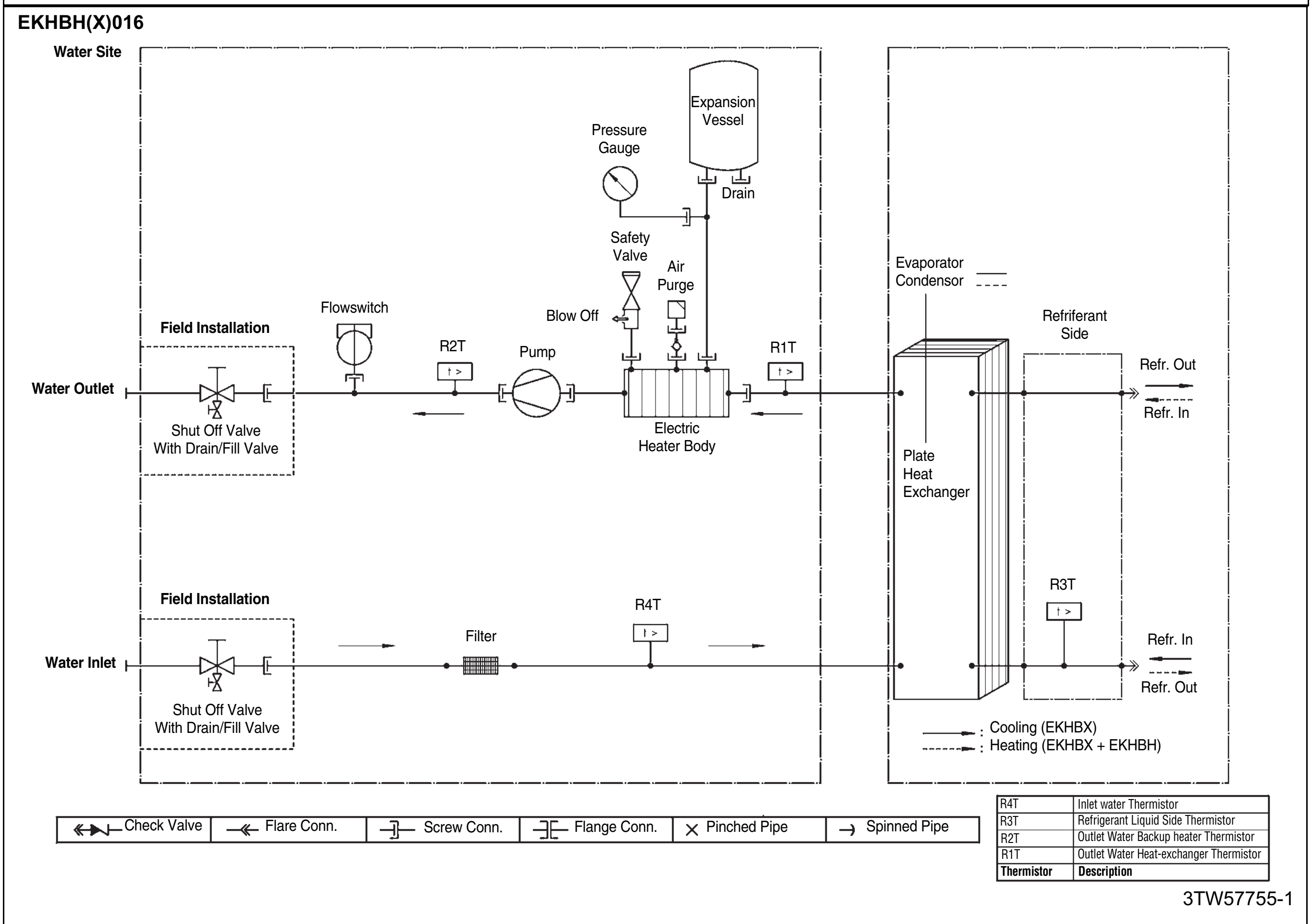
◒	Center of gravity
1	Pump + switch for speed setting
2	Remocon
3	Water IN connection 1-1/4" M BSP
4	Water OUT connection 1-1/4" M BSP
5	Power supply intake (+ sanitary warm water tank)
6	Air purge
7	Expansion vessel +(7a)nipple +(7b)drain
8	Blow off valve
9	Blow off drain (flexible hose ∅20)
10	Pressure gauge
11	Waterfilter
12	Suction pipe connection ∅15.9 flare connection
13	Liquid pipe connection ∅9.52 flare connection
14	Shut off valves with drain/fill valve (accessory delivered with unit)
15	Holes for fixation
16	Switchbox terminals
17	Switchbox terminals option sanitary warm water tank
18	Wallbracket

3TW57754-1

2
5

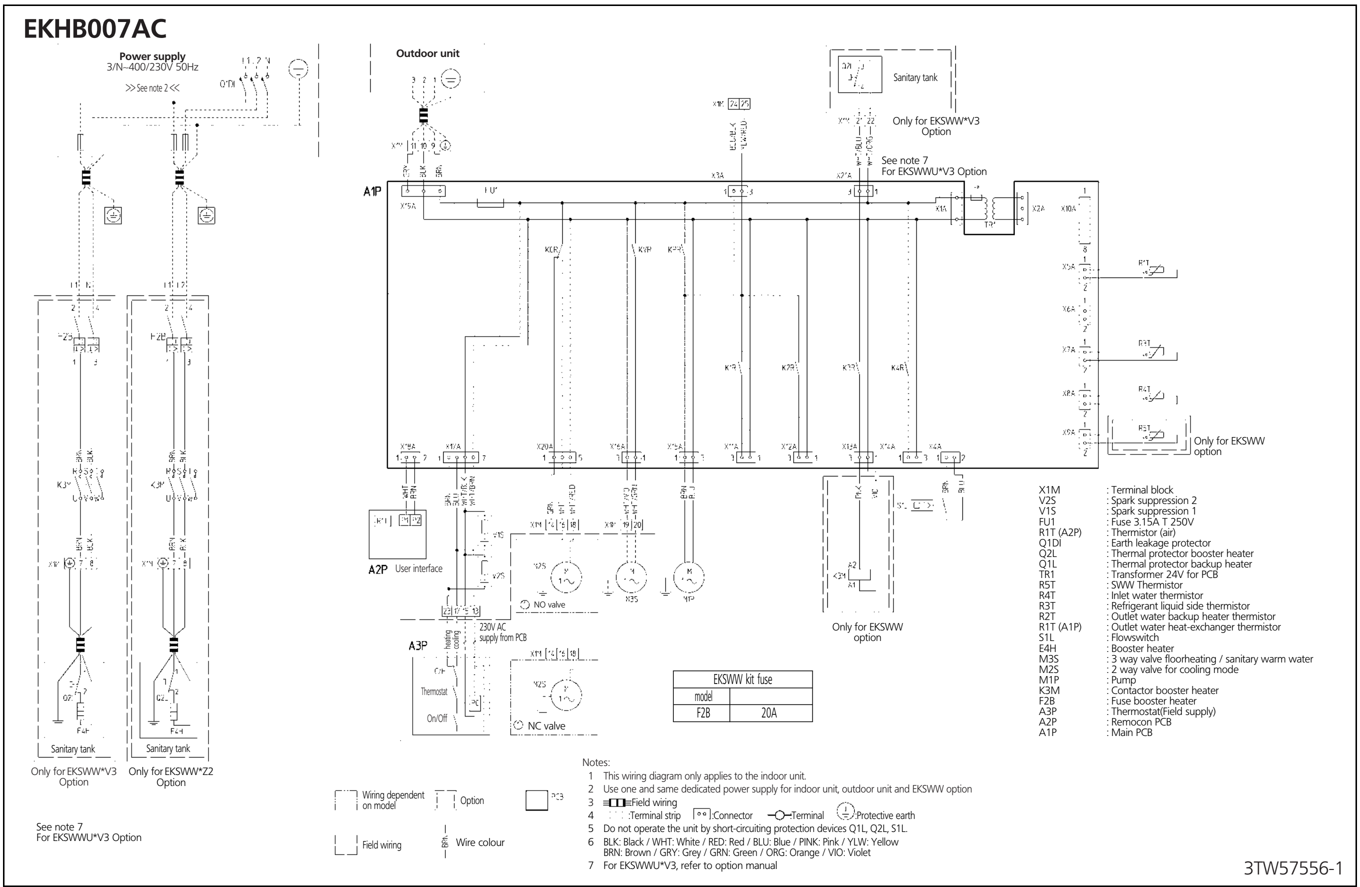
5 Piping diagram

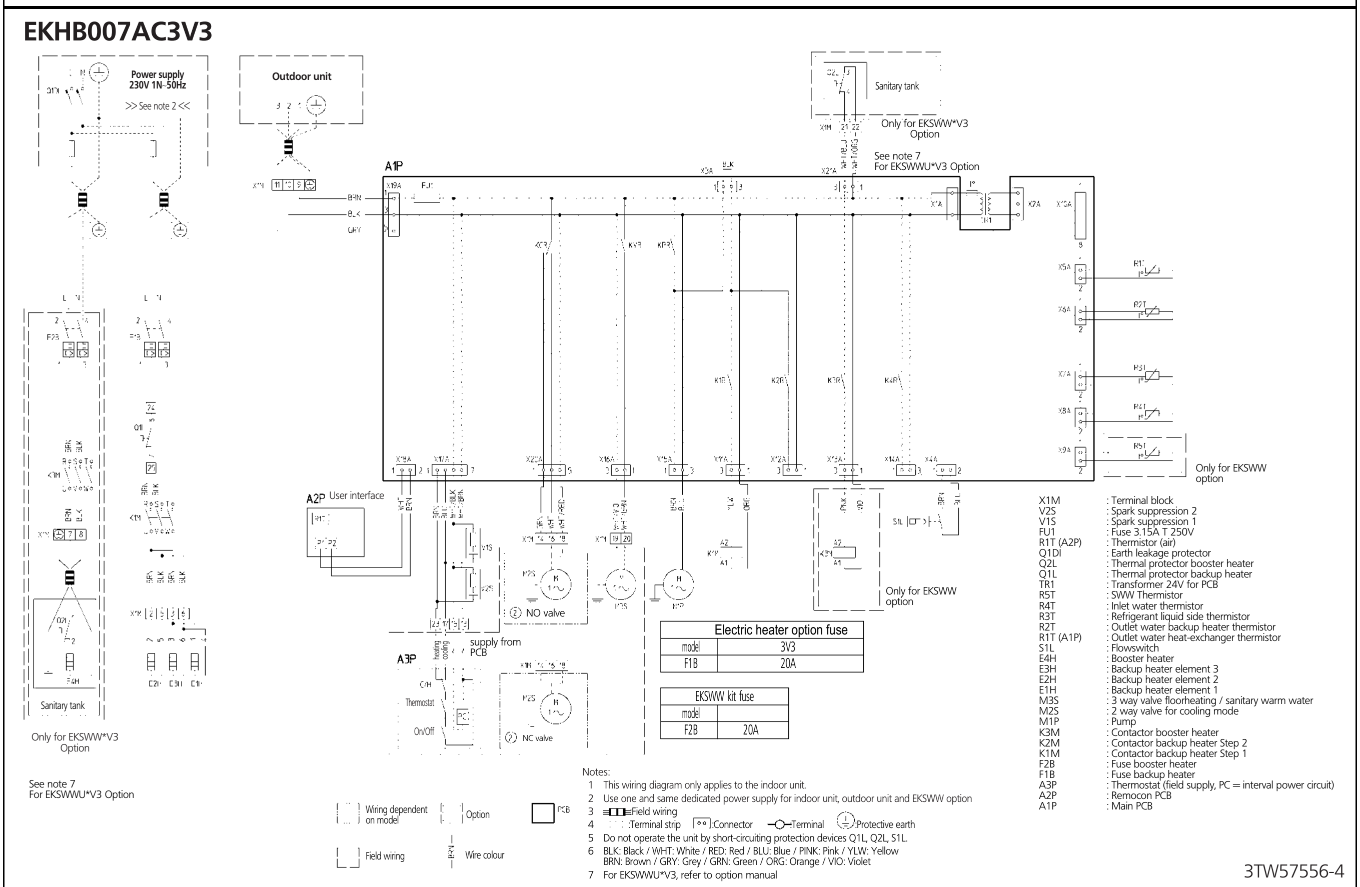




6 Wiring diagram

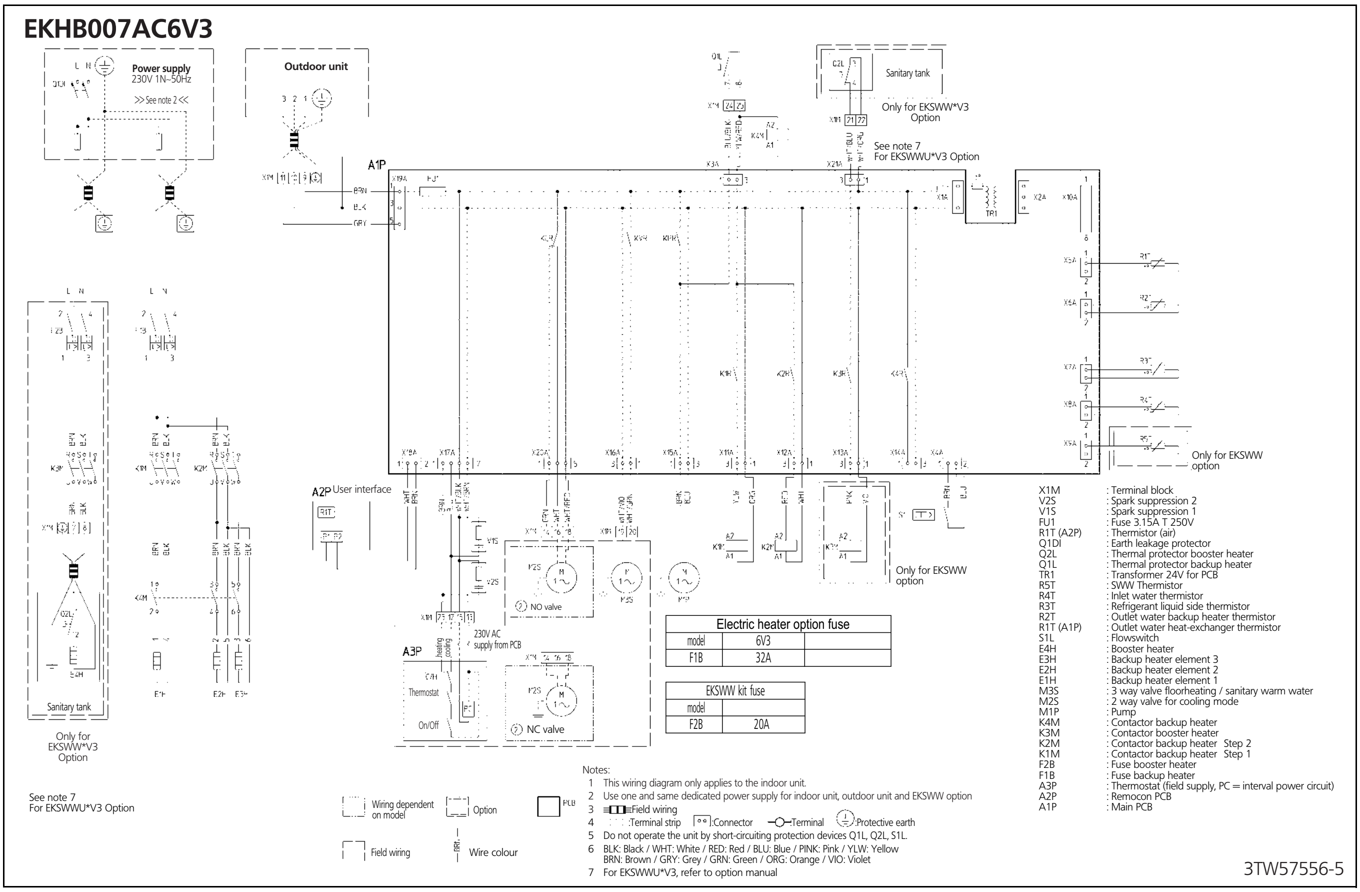
6 - 1 Wiring diagram





6 Wiring diagram

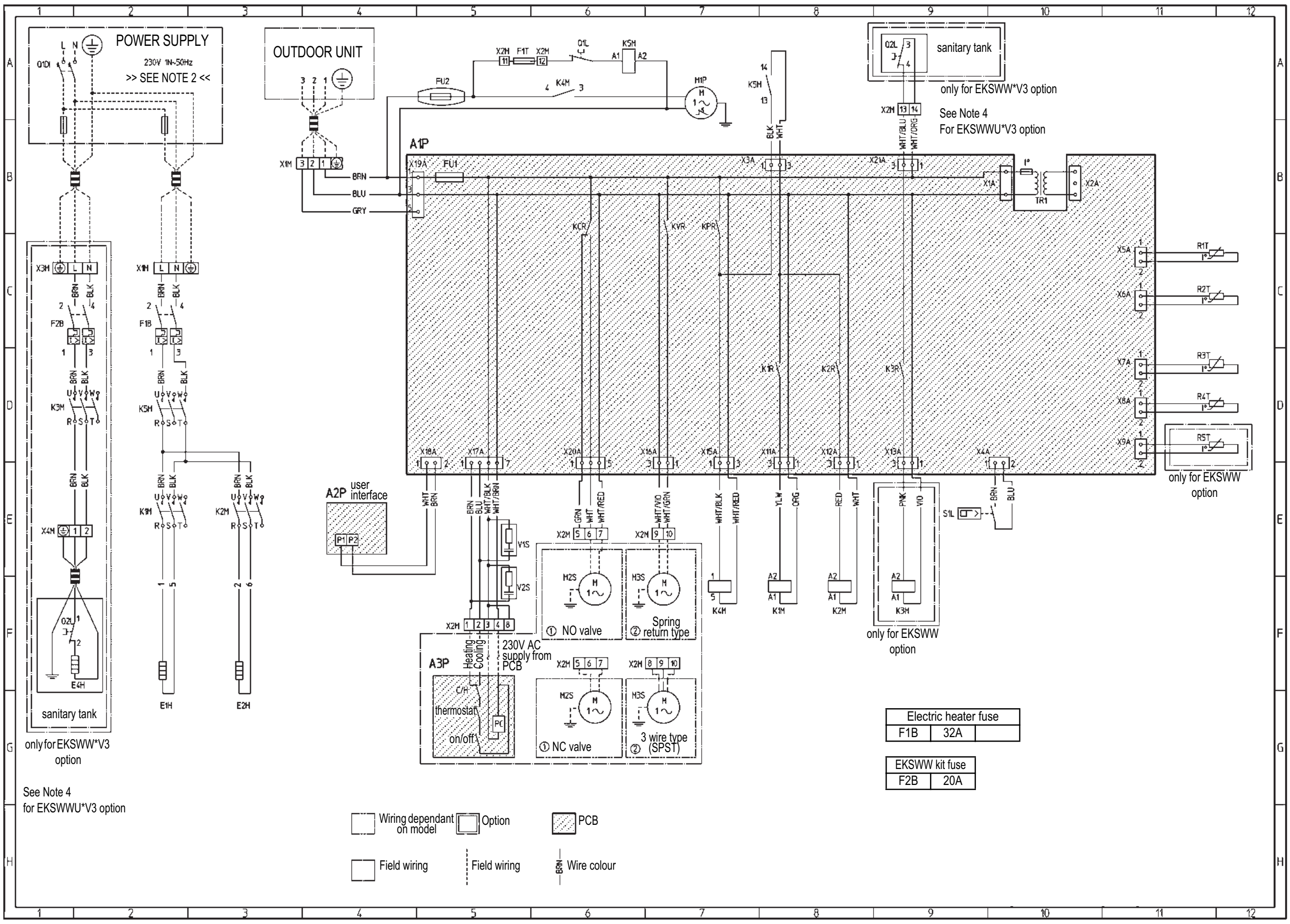
6 - 1 Wiring diagram



6 Wiring diagram

6 - 1 Wiring diagram

EKHBH(X)016 6V3



F1T	Thermal fuse backup heater	R4T	Inlet water thermistor	M1P	Pump
X1M-X4M	Terminal strips	R3T	Refrigerant liquid side thermistor	K5M	Contactor for backup heater all pole disconnection
V1S, V2S	Spark suppression1, 2	R2T	Outlet water backup heater thermistor	K4M	Pump relay
FU2	Fuse 5A T 250V for pump	R1T (A1P)	Outlet water heat exchanger thermistor	K3M	Contactor booster heater
FU1	Fuse 3.15A T 250V for PCB	S1L	Flowswitch	K1M/K2M	Contactor backup heater step 1/2
Q1DI	Earth leakage protector	E4H	Booster heater (3kW)	F2B	Fuse booster heater
Q2L	Thermal protector booster heater	E2H	Backup heater element 2 (3kW)	F1B	Fuse backup heater
Q1L	Thermal protector backup heater	E1H	Backup heater element 1 (3kW)	A3P	Thermostat (field supply) (PC = power circuit)
TR1	Transformer 24V for PCB	M3S	3way valve: floorheating/Sanitary warm water	A2P	User interface PCB
R5T	Sanitary warm water thermistor	M2S	2way valve for cooling mode	A1P	Main PCB

[symbol]	: Terminal strip	NO/NC	Normal open/ normal closed	Colours:	BLK:	Black	PNK:	Pink
[symbol]	: Connector	SPST	Single pole single throw		BLU:	Blue	RED:	Red
[symbol]	: Protective earth				BRN:	Brown	WHT:	White
[symbol]	: Terminal				ORG:	Orange	YLW:	Yellow
[symbol]	: Field wiring				GRY:	Grey	GRN:	Green
					VIO:	Violet		

3TW57746-5B

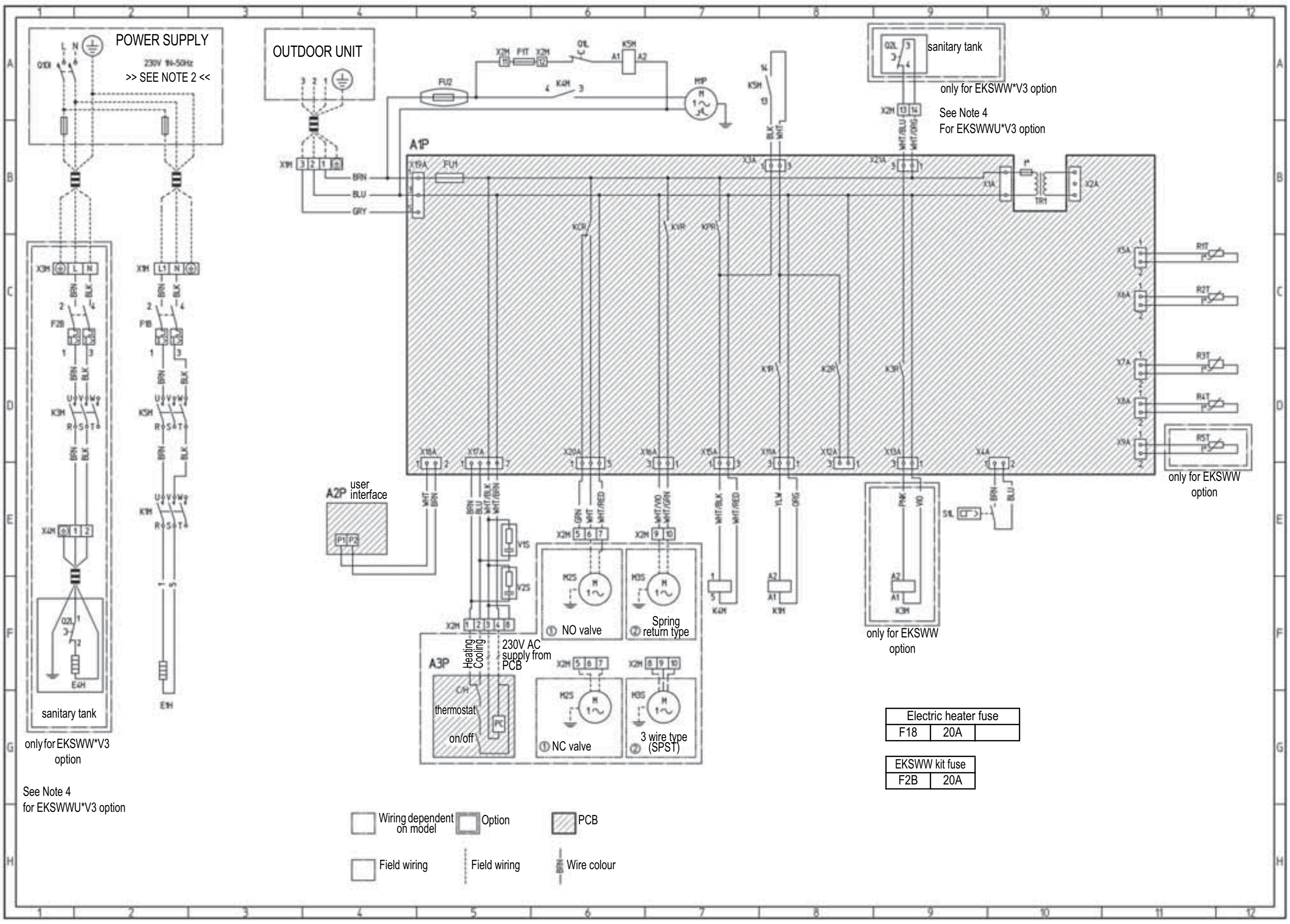
NOTES

1 This wiring diagram only applies to the indoor unit.
2 Use one and same dedicated power supply for indoor unit, outdoor unit and EKSWW option.
3 Do not operate the unit by short-circuiting any protection device.
4 For EKSWWU*V3, refer to option manual.

6 Wiring diagram

6 - 1 Wiring diagram

EKHBH(X)016 3V3



F1T	Thermal fuse backup heater	R4T	Inlet water thermistor	K5M	Contactor for backup heater all pole disconnection
X1M-X4M	Terminal strips	R3T	Refrigerant liquid side thermistor	K4M	Pump relay
V1S, V2S	Spark suppression 1, 2	R2T	Outlet water backup heater thermistor	K3M	Contactor booster heater
FU2	Fuse 5A T 250V for pump	R1T (A1P)	Outlet water heat exchanger thermistor	K1M	Contactor backup heater
FU1	Fuse 3.15A T 250V for PCB	S1L	Flowswitch	F2B	Fuse booster heater
Q1DI	Earth leakage protector	E4H	Booster heater (3kW)	F1B	Fuse backup heater
Q2L	Thermal protector booster heater	E1H	Backup heater element 1 (3kW)	A3P	Thermostat (field supply) (PC power circuit)
Q1L	Thermal protector backup heater	M3S	3way valve: floorheating/Sanitary warm water	A2P	User interface PCB
TR1	Transformer 24V for PCB	M2S	2way valve for cooling mode	A1P	Main PCB
R5T	Sanitary warm water thermistor	M1P	Pump		

	: Terminal strip	NO/NC	Normal open/ normal closed	Colors:	BLK:	Black	PNK:	Pink
	: Connector	SPST	Single pole single throw		BLU:	Blue	RED:	Red
	: Protective earth				BRN:	Brown	WHT:	White
	: Terminal				ORG:	Orange	YLW:	Yellow
	: Field wiring				GRY:	Grey	GRN:	Green
					VIO:	Violet		

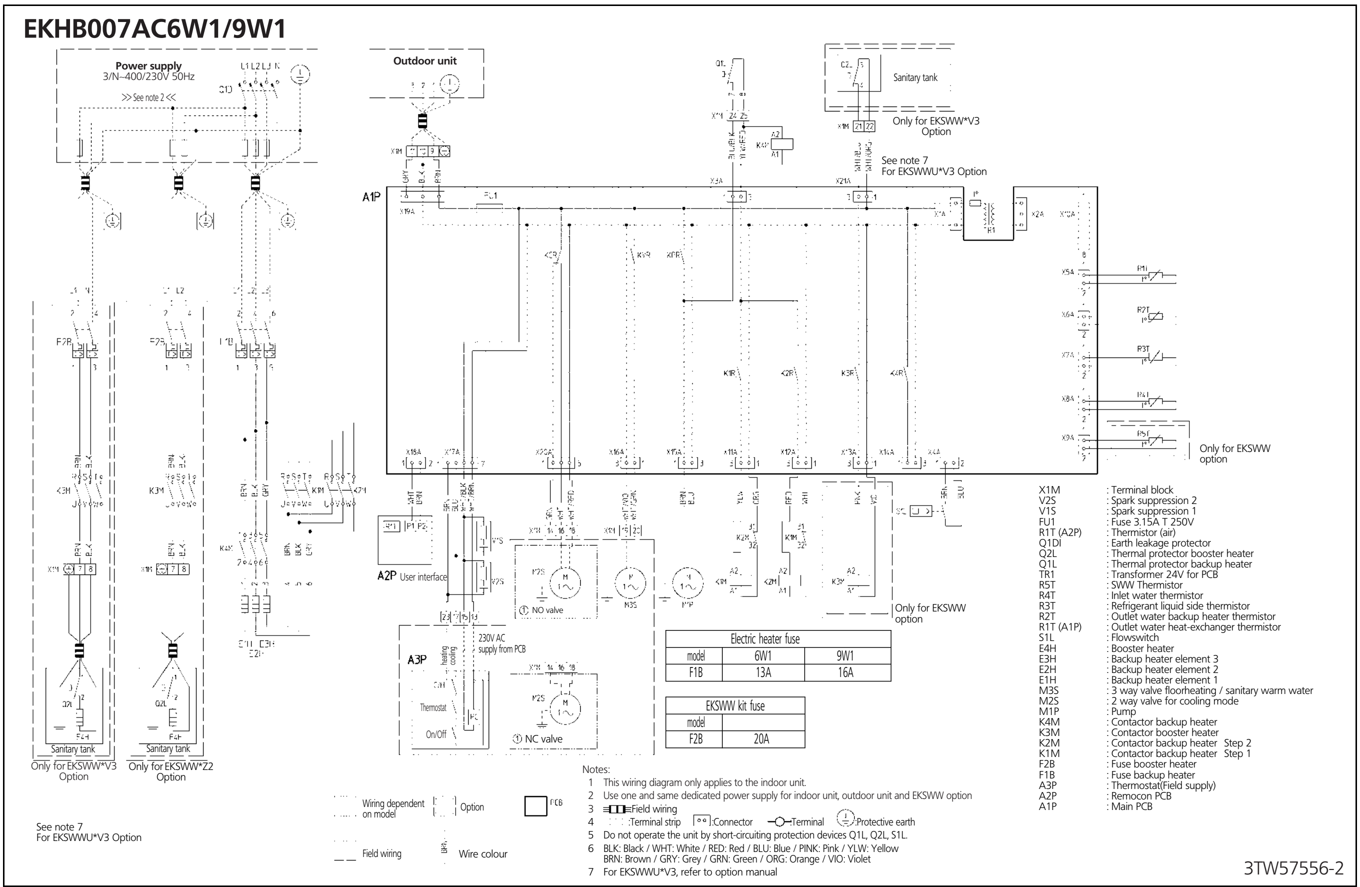
3TW57746-4B

NOTES

1 This wiring diagram only applies to the indoor unit.
2 Use one and same dedicated power supply for indoor unit, outdoor unit and EKSWW option.
3 Do not operate the unit by short-circuiting any protection device.
4 For EKSWWU*V3, refer to option manual.

6 Wiring diagram

6 - 1 Wiring diagram



Electric heater fuse		
model	6W1	9W1
F1B	13A	16A

EKSWW kit fuse	
model	
F2B	20A

Notes:

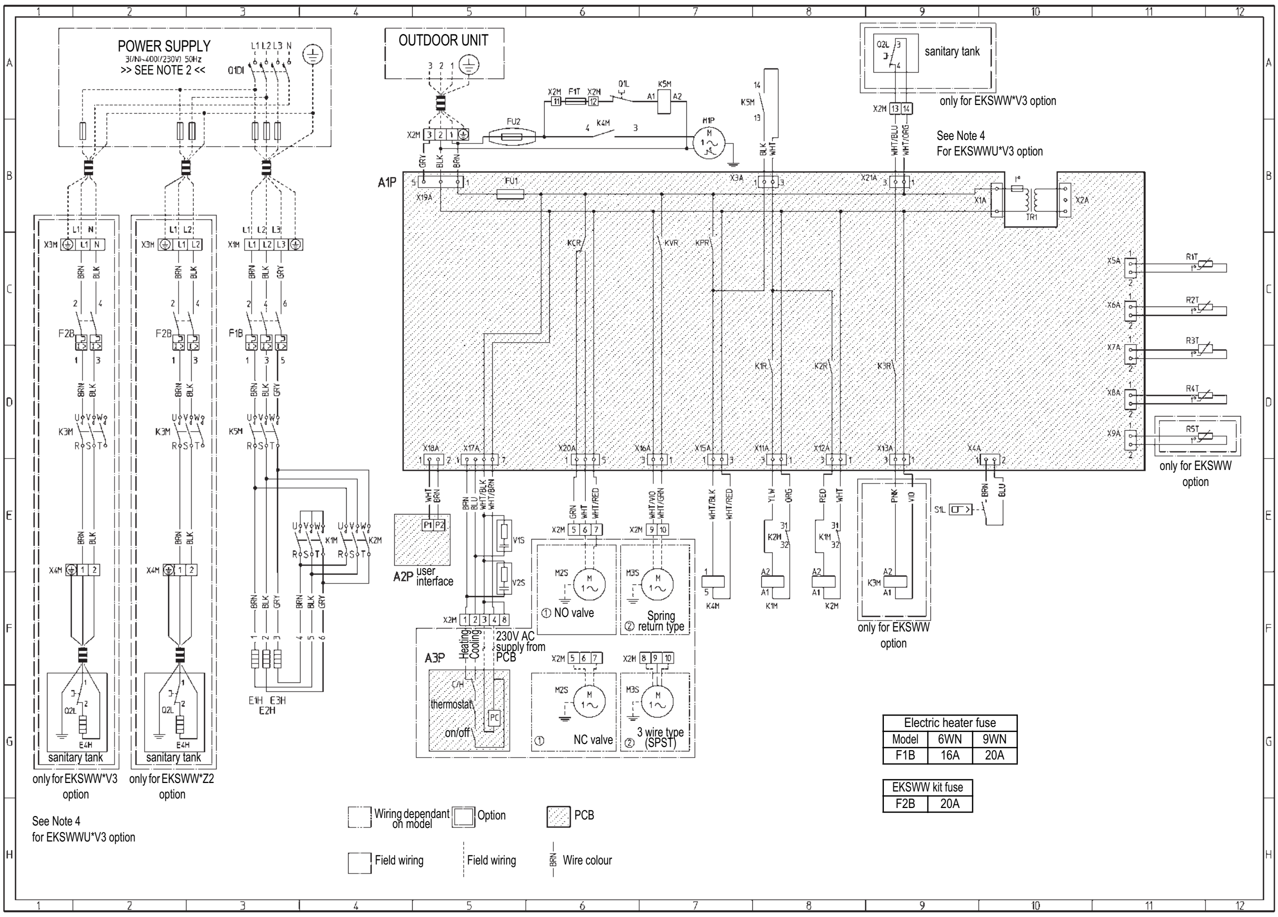
1. This wiring diagram only applies to the indoor unit.
2. Use one and same dedicated power supply for indoor unit, outdoor unit and EKSWW option
3. Field wiring
4. :Terminal strip :Connector :Terminal :Protective earth
5. Do not operate the unit by short-circuiting protection devices Q1L, Q2L, S1L.
6. BLK: Black / WHT: White / RED: Red / BLU: Blue / PINK: Pink / YLW: Yellow
   BRN: Brown / GRY: Grey / GRN: Green / ORG: Orange / VIO: Violet
7. For EKSWWU*V3, refer to option manual

X1M	: Terminal block
V2S	: Spark suppression 2
V1S	: Spark suppression 1
FU1	: Fuse 3.15A T 250V
R1T (A2P)	: Thermistor (air)
Q1DI	: Earth leakage protector
Q2L	: Thermal protector booster heater
Q1L	: Thermal protector backup heater
TR1	: Transformer 24V for PCB
R5T	: SWW Thermistor
R4T	: Inlet water thermistor
R3T	: Refrigerant liquid side thermistor
R2T	: Outlet water backup heater thermistor
R1T (A1P)	: Outlet water heat-exchanger thermistor
S1L	: Flowswitch
E4H	: Booster heater
E3H	: Backup heater element 3
E2H	: Backup heater element 2
E1H	: Backup heater element 1
M3S	: 3 way valve floorheating / sanitary warm water
M2S	: 2 way valve for cooling mode
M1P	: Pump
K4M	: Contactor backup heater
K3M	: Contactor booster heater
K2M	: Contactor backup heater Step 2
K1M	: Contactor backup heater Step 1
F2B	: Fuse booster heater
F1B	: Fuse backup heater
A3P	: Thermostat(Field supply)
A2P	: Remocon PCB
A1P	: Main PCB

6 Wiring diagram

6 - 1 Wiring diagram

EKHBH(X)016 6WN/9WN



F1T	Thermal fuse backup heater	R3T	Refrigerant liquid side thermistor	M1P	Pump
X1M-X4M	Terminal strips	R2T	Outlet water backup heater thermistor	K5M	Contactor for backup heater all pole disconnection
V1S, V2S	Spark suppression1, 2	R1T (A1P)	Outlet water heat exchanger thermistor	K4M	Pump relay
FU2	Fuse 5A T 250V for pump	S1L	Flowswitch	K3M	Contactor booster heater
FU1	Fuse 3.15A T 250V for PCB	E4H	Booster heater (3kW)	K1M/K2M	Contactor backup heater step 1/2
Q1DI	Earth leakage protector	E3H	Backup heater element 3 (6WN:2kW/9WN:3kW)	F2B	Fuse booster heater
Q2L	Thermal protector booster heater	E2H	Backup heater element 2 (6WN:2kW/9WN:3kW)	F1B	Fuse backup heater
Q1L	Thermal protector backup heater	E1H	Backup heater element 1 (6WN:2kW/9WN:3kW)	A3P	Thermostat (field supply) (PC = power circuit)
TR1	Transformer 24V for PCB	M3S	3way valve: floorheating/Sanitary warm water	A2P	User interface PCB
R5T	Sanitary warm water thermistor	M2S	2way valve for cooling mode	A1P	Main PCB
R4T	Inlet water thermistor				

▭▭▭	: Terminal strip	NO/NC	Normal open/ normal closed	Colours:	BLK: Black		PNK: Pink
⊙⊙	: Connector	SPST	Single pole single throw		BLU: Blue		RED: Red
⊕	: Protective earth				BRN: Brown		WHT: White
–○–	: Terminal				ORG: Orange		YLW: Yellow
⊐▯▯⊏	: Field wiring				GRY: Grey		GRN: Green
					VIO: Violet		

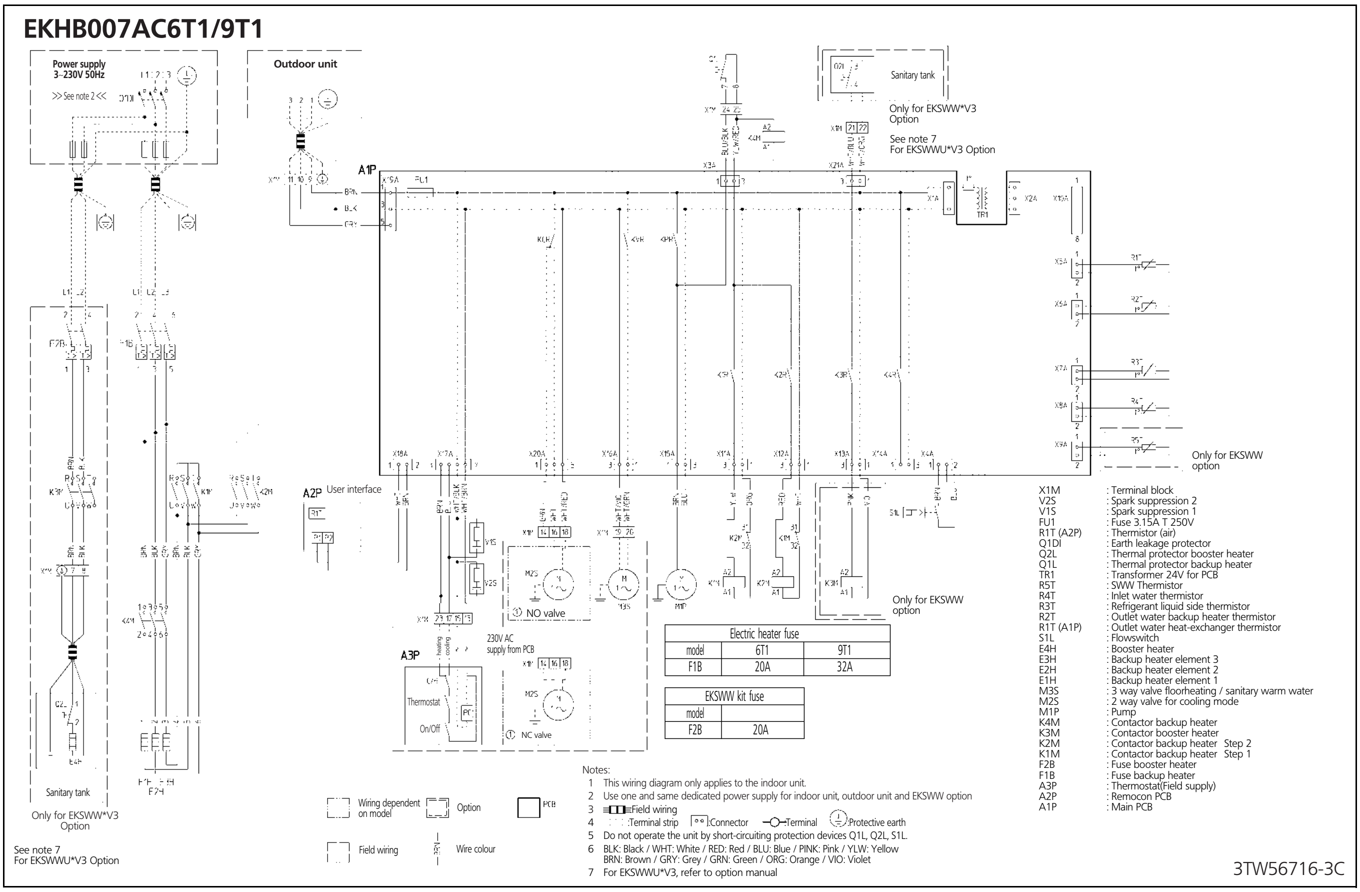
3TW57746-2A

NOTES

1 This wiring diagram only applies to the indoor unit.
2 Use one and same dedicated power supply for indoor unit, outdoor unit and EKSWW option.
3 Do not operate the unit by short-circuiting any protection device.
4 For EKSWWU*V3, refer to option manual.

6 Wiring diagram

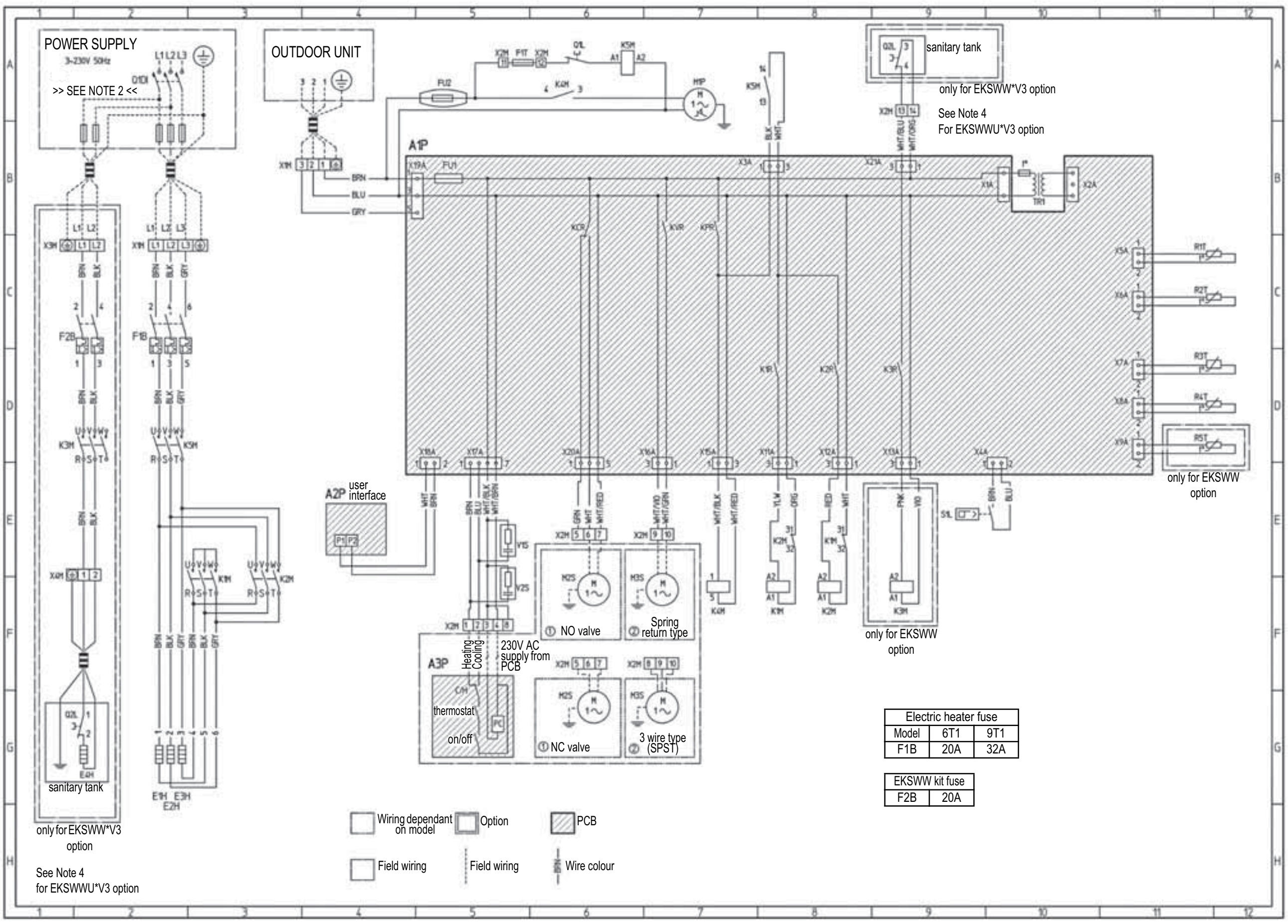
6 - 1 Wiring diagram



6 Wiring diagram

6 - 1 Wiring diagram

EKHBH(X)016 6T1/9T1



F1T	Thermal fuse backup heater	R3T	Refrigerant liquid side thermistor	M1P	Pump
X1M-X4M	Terminal strips	R2T	Outlet water backup heater thermistor	K5M	Contactor for backup heater all pole disconnection
V1S, V2S	Spark suppression1, 2	R1T (A1P)	Outlet water heat exchanger thermistor	K4M	Pump relay
FU2	Fuse 5A T 250V for pump	S1L	Flowswitch	K3M	Contactor booster heater
FU1	Fuse 3.15A T 250V for PCB	E4H	Booster heater (3kW)	K1M/K2M	Contactor backup heater step 1/2
Q1DI	Earth leakage protector	E3H	Backup heater element 3 (6T1:2kW/9T1:3kW)	F2B	Fuse booster heater
Q2L	Thermal protector booster heater	E2H	Backup heater element 2 (6T1:2kW/9T1:3kW)	F1B	Fuse backup heater
Q1L	Thermal protector backup heater	E1H	Backup heater element 1 (6T1:2kW/9T1:3kW)	A3P	Thermostat (field supply) (PC = power circuit)
TR1	Transformer 24V for PCB	M3S	3way valve: floorheating/Sanitary warm water	A2P	User interface PCB
R5T	Sanitary warm water thermistor	M2S	2way valve for cooling mode	A1P	Main PCB
R4T	Inlet water thermistor				

: Terminal strip
: Connector
: Protective earth
: Terminal
: Field wiring

NO/NC Normal open/ normal closed
SPST Single pole single throw

Colours:

BLK:	Black	PNK:	Pink
BLU:	Blue	RED:	Red
BRN:	Brown	WHT:	White
ORG:	Orange	YLW:	Yellow
GRY:	Grey	GRN:	Green
VIO:	Violet		

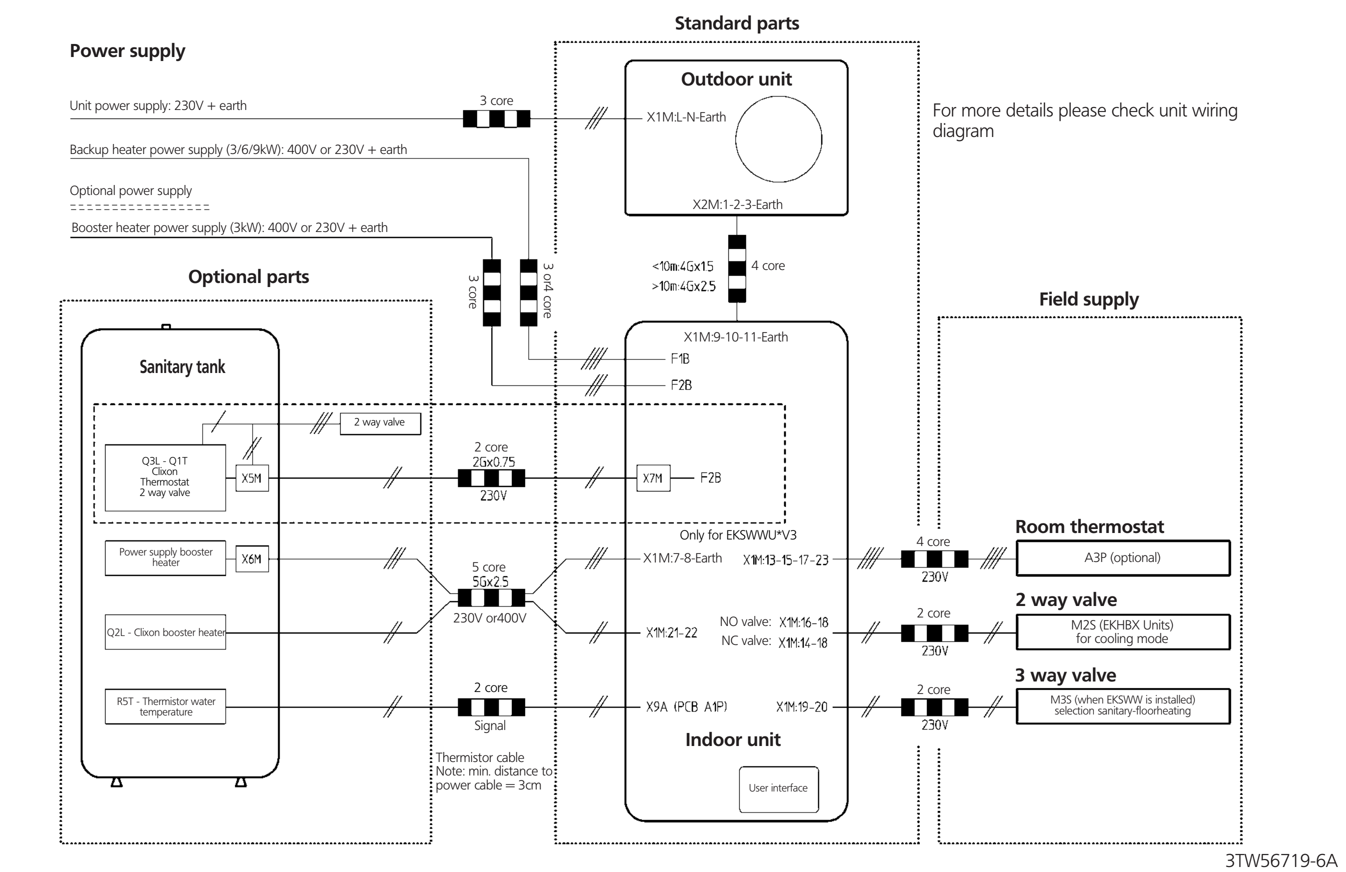
3TW57746-3A

NOTES

1 This wiring diagram only applies to the indoor unit.
2 Use one and same dedicated power supply for indoor unit, outdoor unit and EKSWW option.
3 Do not operate the unit by short-circuiting any protection device.
4 For EKSWWU*V3, refer to option manual.

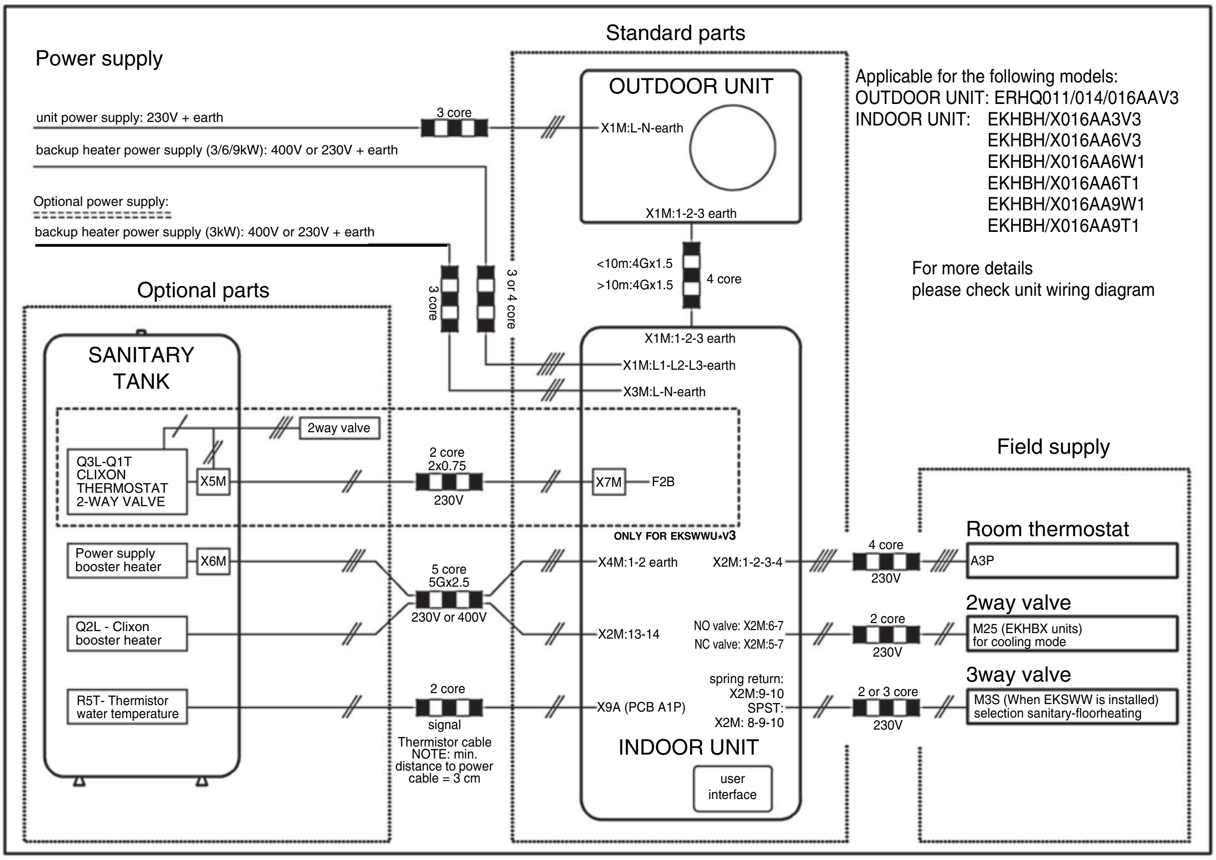
6 Wiring diagram

6 - 2 External connection diagram



3TW56719-6A

ELECTRICAL CONNECTION DIAGRAM ALTHERMA (011/014/016 CLASS)



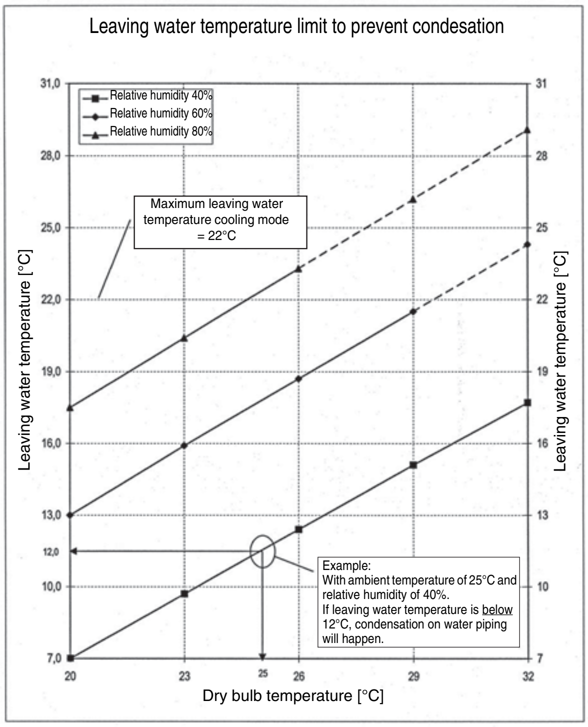
3TW57746-7

7 Installation

7 - 1 Drainage instructions

2
7

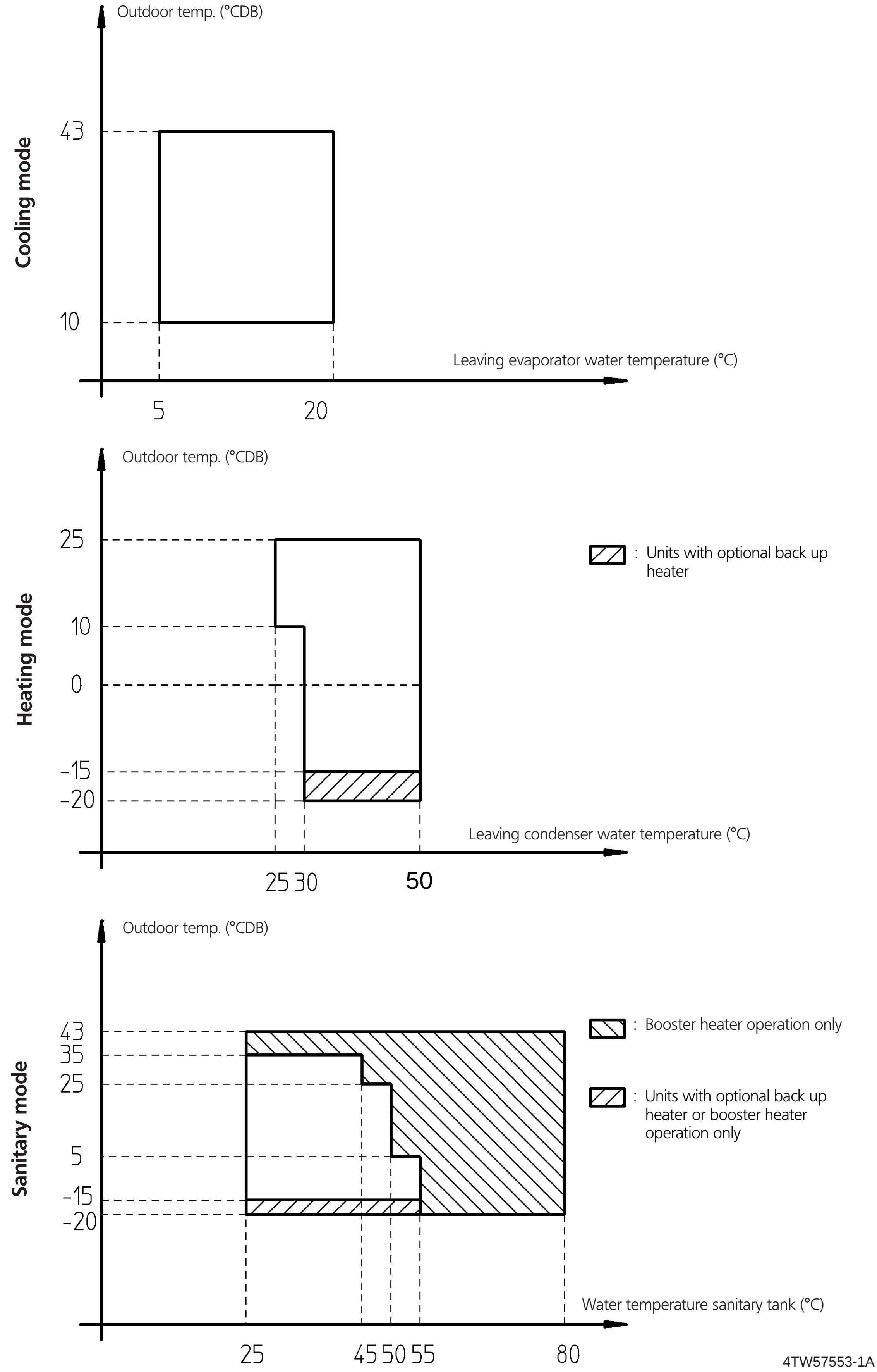
EKHBDP



1. Refer to psychometric chart for more information.
2. If condensation is expected, installation of EKHBDP - drainpan kit must be considered.

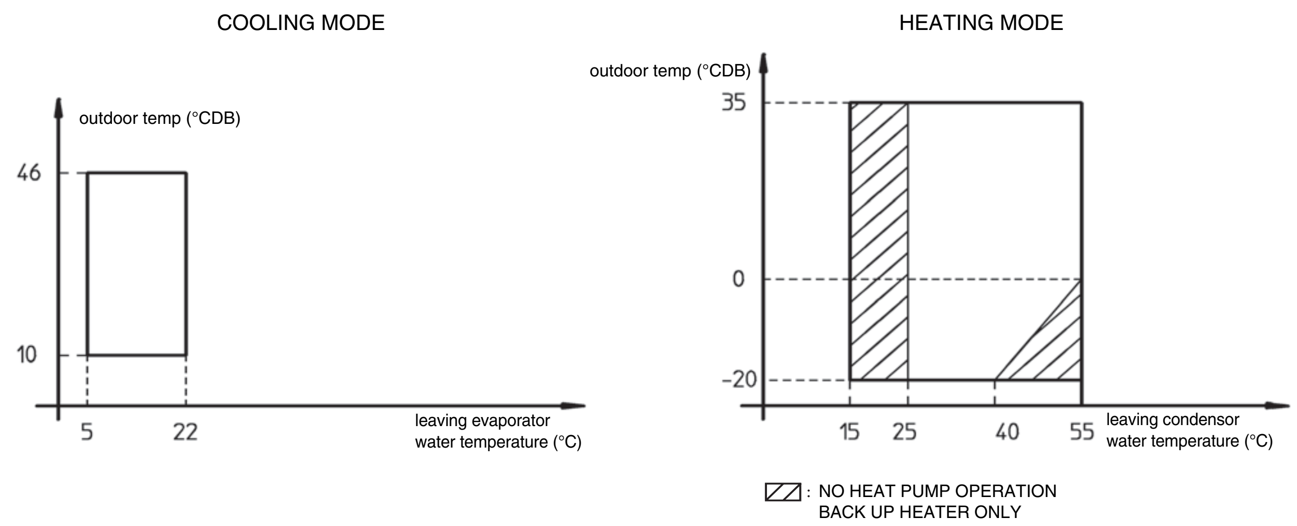
4TW57759-3

8 Operation range



8 Operation range

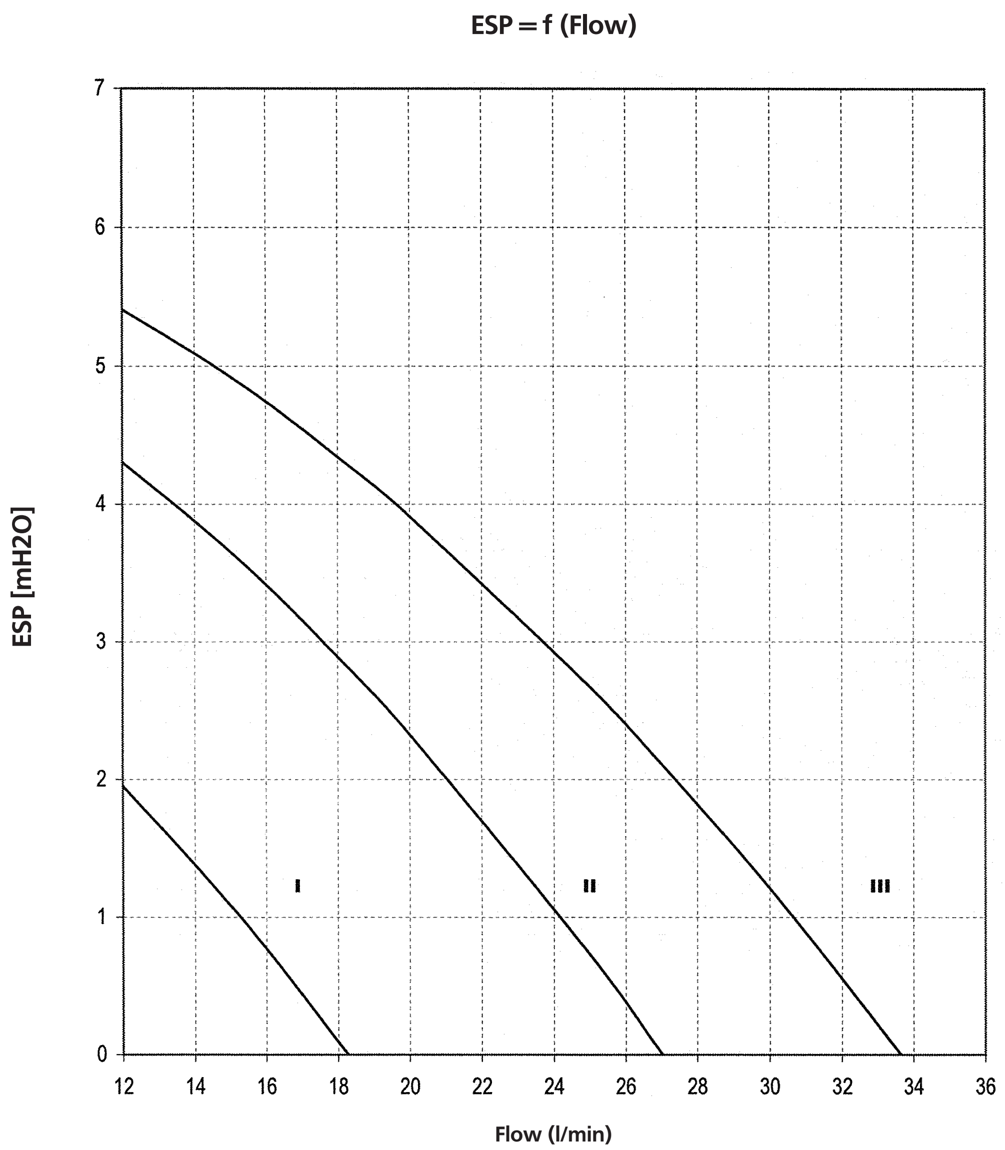
ERHQ - EKHBH(X)016



4TW57753-1A

9 Hydraulic performance

9 - 1 Static pressure drop unit



I: low speed setting pump
II: medium speed setting pump
III: high speed setting pump

ESP: External static pressure
Flow: waterflow trough the unit

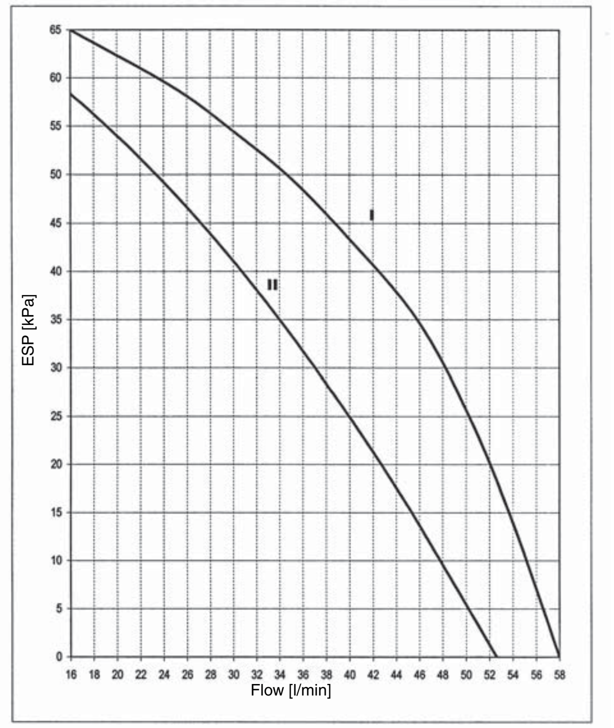
Warning: Selecting a flow outside the curves can cause damage to or malfunction of the unit. See also minimum and maximum allowed water flowrate in the technical specifications.

4TW56749-2

9 Hydraulic performance

9 - 1 Static pressure drop unit

EKHBH(X)016



I high speed
II medium speed
ESP: external static pressure
Flow: waterflow through the unit

Warning:
1. Selecting a flow outside the curves can cause damage to or malfunction of the unit. See also minimum and maximum allowed water flowrange in the technical specifications.
2. Water quality must be according to EN directive EC 98/83 EC.

4TW57759-1

TABLE OF CONTENTS
EKHBX

1 Features

- Cost effective alternative to a fossil fuel boiler
- Low energy bills and low CO_2 emissions
- Easy to install
- Total solution for year round comfort



2 Specifications

2-1 TECHNICAL SPECIFICATIONS				EKHBX007AC + ERYQ005AC	EKHBX007AC + ERYQ006AC	EKHBX007AC + ERYQ007AC	EKHBX016AA + ERHQ011AAV3	EKHBX016AA + ERHQ014AAV3	EKHBX016AA + ERHQ016AAV3
Outdoor units				ERYQ005ACV3	ERYQ006ACV3	ERYQ007ACV3	ERHQ011AAV3	ERHQ014AAV3	ERHQ016AAV3
Nominal input (Indoor only)			W	230	230	230	230	230	230
Casing	Colour			RAL9010					
	Material			Epoxy polyester painted galvanised steel					
Dimensions	Packing	Height	mm	1225	1225	1225	1225	1225	1225
		Width	mm	660	660	660	660	660	660
		Depth	mm	595	595	595	610	610	610
	Unit	Height	mm	936	936	936	922	922	922
		Width	mm	487	487	487	502	502	502
		Depth	mm	461	461	461	361	361	361
Weight	Unit		kg	65	65	65	55	55	55
	Packed Unit		kg	75	75	75	65	65	65
Packing	Material			EPS					
				Wood					
				Carton					
				PS (straps)	PS (straps)	PS (straps)	PP (Straps)	PP (Straps)	PP (Straps)
	Weight		kg	10	10	10	10	10	10
Main components	Pump	Type		Water cooled					
		Nr. of speed		3	3	3	2	2	2
Pump	Nominal ESP unit	Heating	kPa	46.5	40.1	29.0	52.5	43.5	35.0
		Cooling	kPa	49.9	45.9	44.7	55.9	49.1	46.8
Main components	Pump	Power input	W	130	130	130	210	210	210
	Water side Heat exchanger	Type		Brazed plate					
		Qty		1	1	1	1	1	1
		Water volume	l	0.67	0.67	0.67	1.01	1.01	1.01
		Water flow rate Min.	l/min	12	12	12	16	16	16
Water side Heat exchanger	Water flow rate Nom.	Heating	l/min	16.5	19.6	24.1	32.1	40.1	45.9
		Cooling	l/min	14.7	16.8	17.4	28.7	35.8	37.6
Main components	Water side Heat exchanger	Water flow rate Max.	l/min				58	58	58
		Insulation material		Polyurethane foam					
	Expansion vessel	Volume	l	10	10	10	10	10	10
		Max. water pressure	bar	3	3	3	3	3	3
		Pre pressure	bar	1	1	1	1	1	1
	Water filter	Diameter perforations	mm	1	1	1	1	1	1
		Material		Brass					
Water circuit	Piping connections diameter		inch	1''MBSP	1''MBSP	1''MBSP	1-1/4'' MBSP	1-1/4'' MBSP	1-1/4'' MBSP
	Piping		inch	1''MBSP	1''MBSP	1''MBSP	1-1/4''	1-1/4''	1-1/4''
	Safety valve		bar	3	3	3	3	3	3
	Manometer			Yes					
	Drain valve / Fill valve			Yes					
	Shut off valve			Yes					
	Air purge valve			Yes					
	Total water volume (6)		l				5.5	5.5	5.5
Refrigerant Circuit	Gas side diameter		mm	15,9					
	Liquid side diameter		mm	6,35	6,35	6,35	9,52	9,52	9,52
Sound Level	Sound Pressure		dBA	28	28	28	28	28	28

2 Specifications

2-1 TECHNICAL SPECIFICATIONS				EKHBX007AC + ERYQ005AC	EKHBX007AC + ERYQ006AC	EKHBX007AC + ERYQ007AC	EKHBX016AA + ERHQ011AAV3	EKHBX016AA + ERHQ014AAV3	EKHBX016AA + ERHQ016AAV3
Operation range	Ambient	Heating	°C				-20~35	-20~35	-20~35
		Cooling	°C				10~46	10~46	10~46
	Waterside	Heating	°C	25~55	25~55	25~55	15~55	15~55	15~55
		Cooling	°C	5~20	5~20	5~20	5~22	5~22	5~22
Notes				The sound pressure level is measured via a microphone at a certain distance from the unit. It is a relative value, depending on the distance and acoustic environment.			With option kit EKHBDP installed: Height=936mm		
				The sound pressure level is valid for pump medium speed.			Tamb 35°C - LWE 7°C (DT=5°C)		
				Tamb 35°C - LWE 7°C (DT=5°C)			DB/WB 7°C/6°C-LWC 35°C(DT=5°C)		
				DB/WB 7°C/6°C-LWC 35°C(DT=5°C)			The sound pressure level is measured via a microphone at 1m from the unit. It is a relative acoustic environment. The sound pressure level mentioned is valid for pump medium speed.		
							15°C-25°C: BUH only, no Heatpump operation=during commissioning.		
							Including piping+PHE+backup heater/excluding expansion vessel.		

2-2 ELECTRICAL SPECIFICATIONS				EKHBX007AC + ERYQ005AC	EKHBX007AC + ERYQ006AC	EKHBX007AC + ERYQ007AC	EKHBX016AA + ERHQ011AAV3	EKHBX016AA + ERHQ014AAV3	EKHBX016AA + ERHQ016AAV3
Electric heater	Type			No backup heater					
Electric heater	Type			3V3					
	Power Supply	Phase		1~					
		Frequency	Hz	50	50	50	50	50	50
		Voltage	V	230	230	230	230	230	230
	Current	Running Current	A	13	13	13	13	13	13
	Voltage range	Minimum					-10%		-10%
		Maximum					+10%	+10%	+10%
Wiring connections	For power supply backup heater	Quantity of wires					3G	3G	3G
		Type of wires					Select diameter and type according to national and local regulations		
Electric heater	Type			6V3					
	Power Supply	Phase		1~					
		Frequency	Hz	50	50	50	50	50	50
		Voltage	V	230	230	230	230	230	230
	Current	Running Current	A	26	26	26	26	26	26
	Voltage range	Minimum					-10%	-10%	-10%
		Maximum					+10%	+10%	+10%
Wiring connections	For power supply backup heater	Quantity of wires					3G	3G	3G
		Type of wires					Select diameter and type according to national and local regulations		
Electric heater	Type			6W1	6W1	6W1	6WN	6WN	6WN
	Power Supply	Phase		3N~	3N~	3N~	3~	3~	3~
		Frequency	Hz	50	50	50	50	50	50
		Voltage	V	400	400	400	400	400	400
	Current	Running Current	A	8.6	8.6	8.6	8.7	8.7	8.7
	Voltage range	Minimum					-10%		-10%
		Maximum					+10%	+10%	+10%
Wiring connections	For power supply backup heater	Quantity of wires					4G	4G	4G
		Type of wires					Select diameter and type according to national and local regulations		

2 Specifications

2-2 ELECTRICAL SPECIFICATIONS				EKHBX007AC + ERYQ005AC	EKHBX007AC + ERYQ006AC	EKHBX007AC + ERYQ007AC	EKHBX016AA + ERHQ011AAV3	EKHBX016AA + ERHQ014AAV3	EKHBX016AA + ERHQ016AAV3
Electric heater	Type			6T1					
	Power Supply	Phase		3~					
		Frequency	Hz	50	50	50	50	50	50
		Voltage	V	230	230	230	230	230	230
	Current	Running Current	A	15	15	15	15.1	15.1	15.1
	Voltage range	Minimum					-10%		-10%
		Maximum					+10%	+10%	+10%
Wiring connections	For power supply backup heater	Quantity of wires					4G	4G	4G
		Type of wires					Select diameter and type according to national and local regulations		
Electric heater	Type			9W1	9W1	9W1	9WN	9WN	9WN
	Power Supply	Phase		3N~	3N~	3N~	3~	3~	3~
		Frequency	Hz	50	50	50	50	50	50
		Voltage	V	400	400	400	400	400	400
	Current	Running Current	A	13	13	13	13	13	13
	Voltage range	Minimum					-10%	-10%	-10%
		Maximum					+10%	+10%	+10%
Wiring connections	For power supply backup heater	Quantity of wires					4G	4G	4G
		Type of wires					Select diameter and type according to national and local regulations		
Electric heater	Type			9T1					
	Power Supply	Phase		3~					
		Frequency	Hz	50	50	50	50	50	50
		Voltage	V	230	230	230	230	230	230
	Current	Running Current	A	23	23	23	22.6	22.6	22.6
	Voltage range	Minimum					-10%		-10%
		Maximum					+10%	+10%	+10%

2 Specifications

2-2 ELECTRICAL SPECIFICATIONS			EKHBX007AC + ERYQ005AC	EKHBX007AC + ERYQ006AC	EKHBX007AC + ERYQ007AC	EKHBX016AA + ERHQ011AAV3	EKHBX016AA + ERHQ014AAV3	EKHBX016AA + ERHQ016AAV3
Wiring connections	For power supply backup heater	Quantity of wires				4G	4G	4G
		Type of wires				Select diameter and type according to national and local regulations		
	Connection type					For power supply connection to Optional Warm Water Tank + Q2L		
	Quantity of wires					3G	3G	3G
	Type of wires					Select diameter and type according to national and local regulations		
	Connection type					For power supply connection to Optional Warm Water Tank + Q2L		
	Quantity of wires					3G	3G	3G
	Type of wires					For more details of the voltage range and current refer to installation manual EKHBH/X016AA*		
	Connection type					For connection with R5T		
	Quantity of wires					Wire included in option EKSWW*		
	Type of wires					Wire included in option EKSWW*		
	Connection type					For connection with A3P		
	Quantity of wires					Depends on thermostat type, refer to installation manual EKHBH/X016AA*		
	Type of wires					Select diameter and type according to national and local regulations		
	Connection type					For connection with A3P		
	Quantity of wires					Depends on thermostat type, refer to installation manual EKHBH/X016AA*		
	Type of wires					Voltage: 230V/Maximum current: 100mA/Minimum 0,75 mm²		
	Connection type					For connection with M2S		
	Quantity of wires					3G	3G	3G
	Type of wires					Select diameter and type according to national and local regulations		
	Connection type					For connection with M2S		
	Quantity of wires					3G	3G	3G
	Type of wires					Voltage: 230V/Maximum current: 100mA/Minimum 0,75 mm²		
	Connection type					For connection with M3S		
	Quantity of wires					3G or 4G	3G or 4G	3G or 4G
	Type of wires					Select diameter and type according to national and local regulations		
	Connection type					For connection with M3S		
	Quantity of wires					3G or 4G	3G or 4G	3G or 4G
	Type of wires					Voltage: 230V/Maximum current: 100mA/Minimum 0,75 mm²		
Notes			Optional electric heater has 2 capacity steps except for the 3V3 model which has only 1 capacity step.					
			For 6W1 and 9W1 models, neutral line only required for optional booster heater power supply.					
			Model without optional back up heater is powered via outdoor unit.					

3 Options

Optional equipment for EKHB(H/X)007AC*

Reference	Description	Number							Availability
	Heating only model **Reversible model**	EKHBH007AC EKHBX007AC	EKHBH007AC3V3 EKHBX007AC3V3	EKHBH007AC6V3 EKHBX007AC6V3	EKHBH007AC6W1 EKHBX007AC6W1	EKHBH007AC6T1 EKHBX007AC6T1	EKHBH007AC9W1 EKHBX007AC9W1	EKHBH007AC9T1 EKHBX007AC9T1	
	Available options								
3V3	Back up heater 3kW 1~230 V	—	○	—	—	—	—	—	Factory mounted
6V3	Back up heater 6kW 1~230 V	—	—	○	—	—	—	—	Factory mounted
6W1	Back up heater 6kW 3~400 V + N	—	—	—	○	—	—	—	Factory mounted
6T1	Back up heater 6kW 3~230 V	—	—	—	—	○	—	—	Factory mounted
9W1	Back up heater 9kW 3~400 V + N	—	—	—	—	—	○	—	Factory mounted
9T1	Back up heater 9kW 3~230 V	—	—	—	—	—	—	○	Factory mounted
	Available kits								
EKSWW150V3	Sanitary warm water tank 150 l 230 V	○	○	○	○	○	○	○	Kit
EKSWW200V3	Sanitary warm water tank 200 l 230 V	○	○	○	○	○	○	○	Kit
EKSWW300V3	Sanitary warm water tank 300 l 230 V	○	○	○	○	○	○	○	Kit
EKSWW200Z2	Sanitary warm water tank 200 l 400 V	—	—	—	○	—	○	—	Kit
EKSWW300Z2	Sanitary warm water tank 300 l 400 V	—	—	—	○	—	○	—	Kit
EKSWWU150V3	Sanitary warm water tank 150 l 230 V	○	○	○	○	○	○	○	Kit
EKSWWU200V3	Sanitary warm water tank 200 l 230 V	○	○	○	○	○	○	○	Kit
EKSWWU300V3	Sanitary warm water tank 300 l 230 V	○	○	○	○	○	○	○	Kit
EKWBSWW150	Wall bracket for EKSWW150V3								Kit
EKUSWW	Option kit for UK EKSWWU150~300V3								Kit

3TW57559-5

Note:
An EKHB (H/X) 007**AC*** indoor unit can only be connected to an outdoor unit ERYQ005~007**AC***

3 Options

EKHBH(X)016

Factory mounted optional equipment for EKHB(H/X)016AA**

Reference		Description												
		Heating only model EKHBH016A....	A3V3		A6V3		A6WN		A6T1		A9WN		A9T1	
		Reversible model EKHBX016A....		A3V3		A6V3		A6WN		A6T1		A9WN		A9T1
**														
3V3		Back up heater 3kW 1~230V	0	0	-	-	-	-	-	-	-	-	-	-
6V3		Back up heater 6kW 1~230V	-	-	0	0	-	-	-	-	-	-	-	-
6WN		Back up heater 6kW 3~400V	-	-	-	-	0	0	-	-	-	-	-	-
6T1		Back up heater 6kW 3~230V	-	-	-	-	-	-	0	0	-	-	-	-
9WN		Back up heater 9kW 3~400V	-	-	-	-	-	-	-	-	0	0	-	-
9T1		Back up heater 9kW 3~230V	-	-	-	-	-	-	-	-	-	-	0	0

Outdoor combination table for EKHB(H/X)016AA**

Reference	Description	ERHQ011AAV3	ERHQ014AAV3	ERHQ016AAV3
EKHBH016AA*	Heating only indoor unit	0	0	0
EKHBX016AA*	Reversible indoor unit	0	0	0

Kit availability for EKHB(H/X)016AA*

Reference	Description												
	Heating only model EKHBH016A....	A3V3		A6V3		A6WN		A6T1		A9WN		A9T1	
	Reversible indoor unit		A3V3		A6V3		A6WN		A6T1		A9WN		A9T1
EKSWW150V3	Sanitary warm water tank 150l 1~230V	0	0	0	0	0(*)	0(*)	0	0	0(*)	0(*)	0	0
EKSWW200V3	Sanitary warm water tank 200l 1~230V	0	0	0	0	0(*)	0(*)	0	0	0(*)	0(*)	0	0
EKSWW300V3	Sanitary warm water tank 300l 1~230V	0	0	0	0	0(*)	0(*)	0	0	0(*)	0(*)	0	0
EKSWW200Z2	Sanitary warm water tank 200l 2~400V	-	-	-	-	0	0	-	-	0	0	-	-
EKSWW300Z2	Sanitary warm water tank 300l 2~400V	-	-	-	-	0	0	-	-	0	0	-	-
EKSWWU150V3	Sanitary warm water tank 150l 1~230V	0	0	0	0	0(*)	0(*)	0	0	0(*)	0(*)	0	0
EKSWWU200V3	Sanitary warm water tank 200l 2~230V	0	0	0	0	0(*)	0(*)	0	0	0(*)	0(*)	0	0
EKSWWU300V3	Sanitary warm water tank 300l 2~230V	0	0	0	0	0(*)	0(*)	0	0	0(*)	0(*)	0	0
EKHBDP	Option kit for condensate free cooling operation	-	0	-	0	-	0	-	0	-	0	-	0

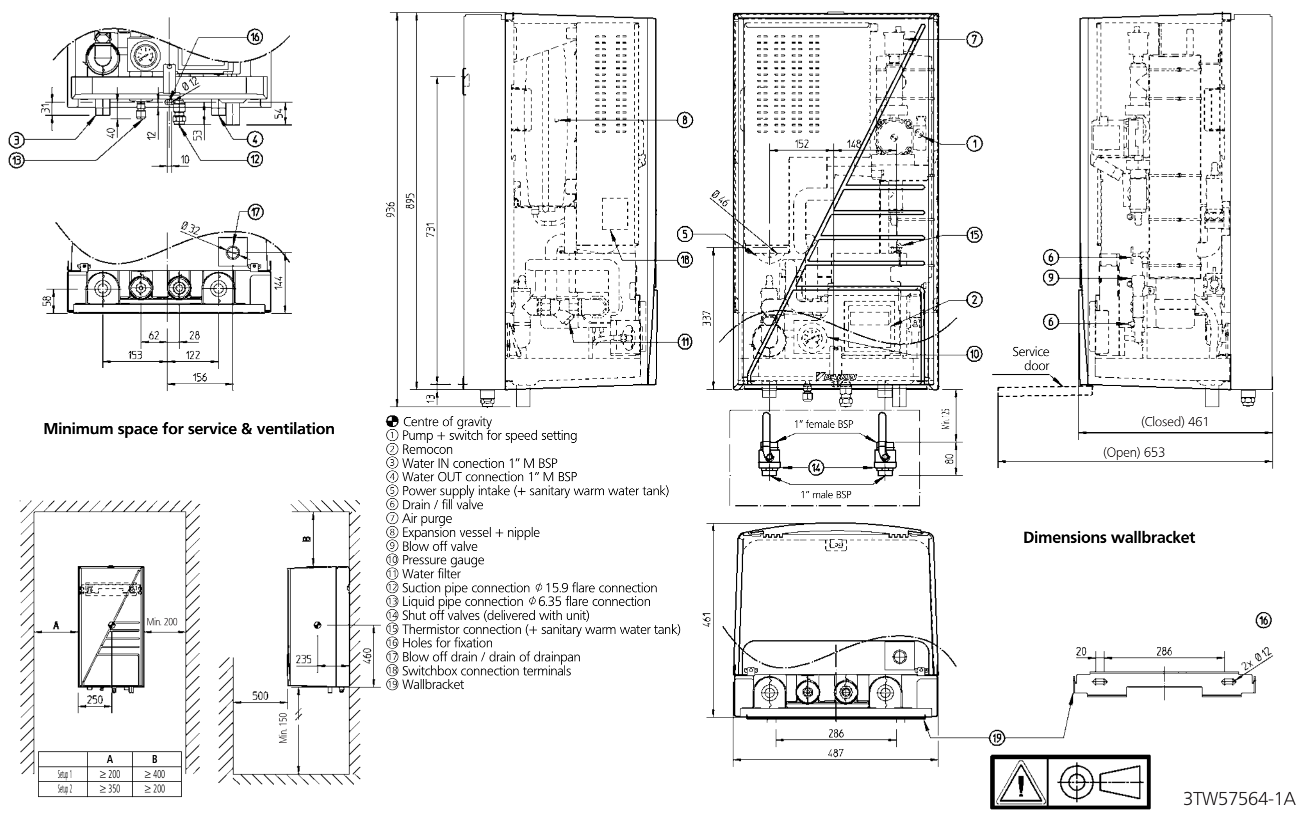
*if neutral line is available

3TW57759-2A

4 Dimensional drawing & centre of gravity

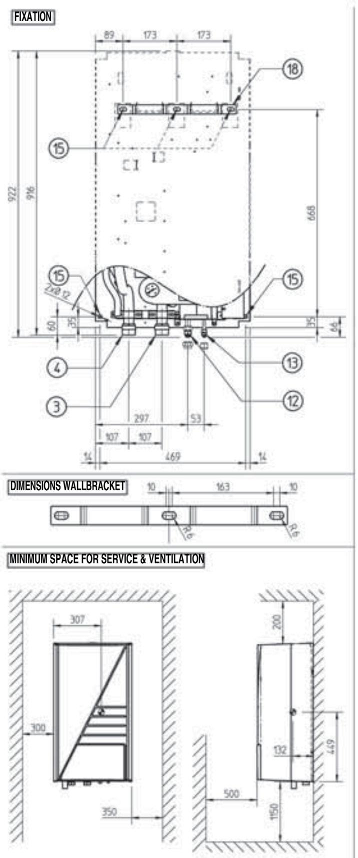
4 - 1 Dimensional drawing

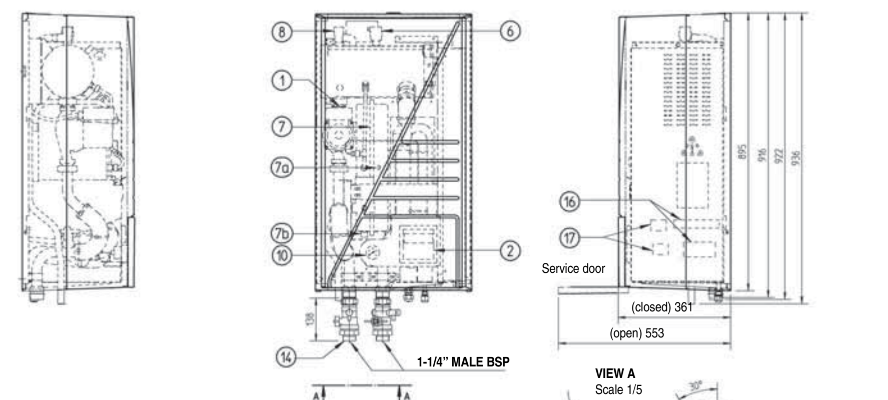
EKHBX-AC



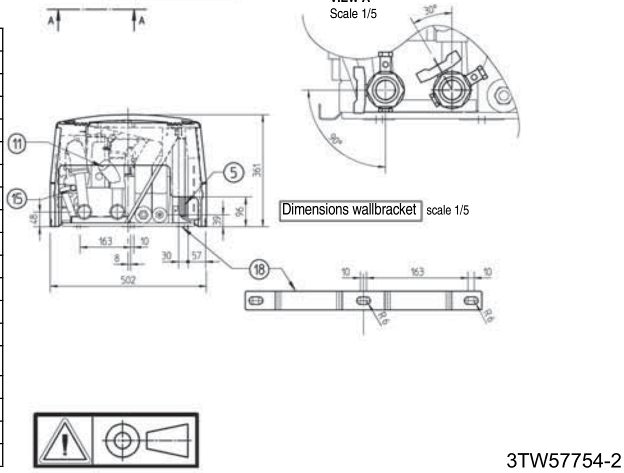
3TW57564-1A

EKHBX016A





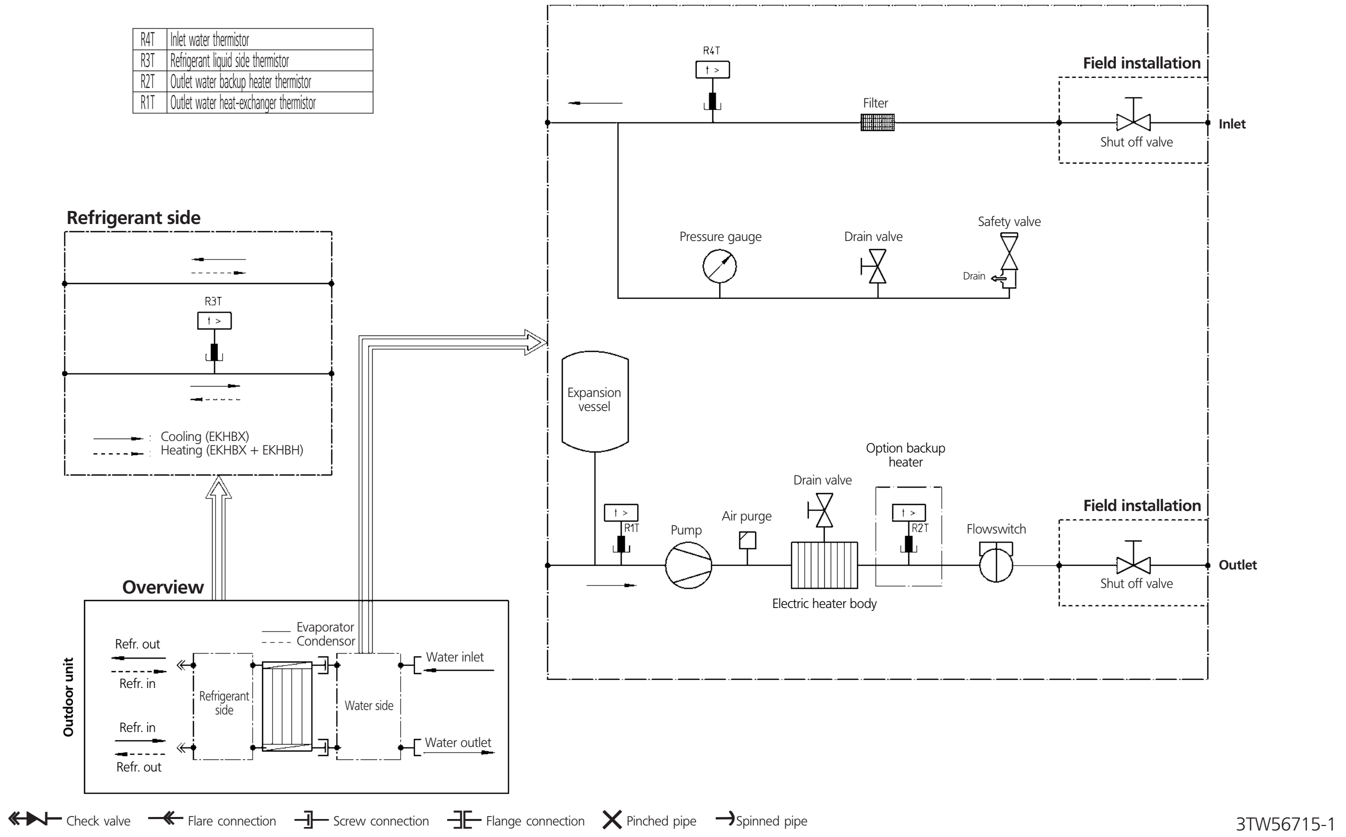
◐	Center of gravity
1	Pump + switch for speed setting
2	Remocon
3	Water IN connection 1-1/4” M BSP
4	Water OUT connection 1-1/4” M BSP
5	Power supply intake (+ sanitary warm water tank)
6	Air purge
7	Expansion vessel +(7a)nipple +(7b)drain
8	Blow off valve
9	Blow off drain (flexible hose ∅20)
10	Pressure gauge
11	Waterfilter
12	Suction pipe connection ∅15.9 flare connection
13	Liquid pipe connection ∅9.52 flare connection
14	Shut off valves with drain/fill valve (accessory delivered with unit)
15	Holes for fixation
16	Switchbox terminals
17	Switchbox terminals option sanitary warm water tank
18	Wallbracket



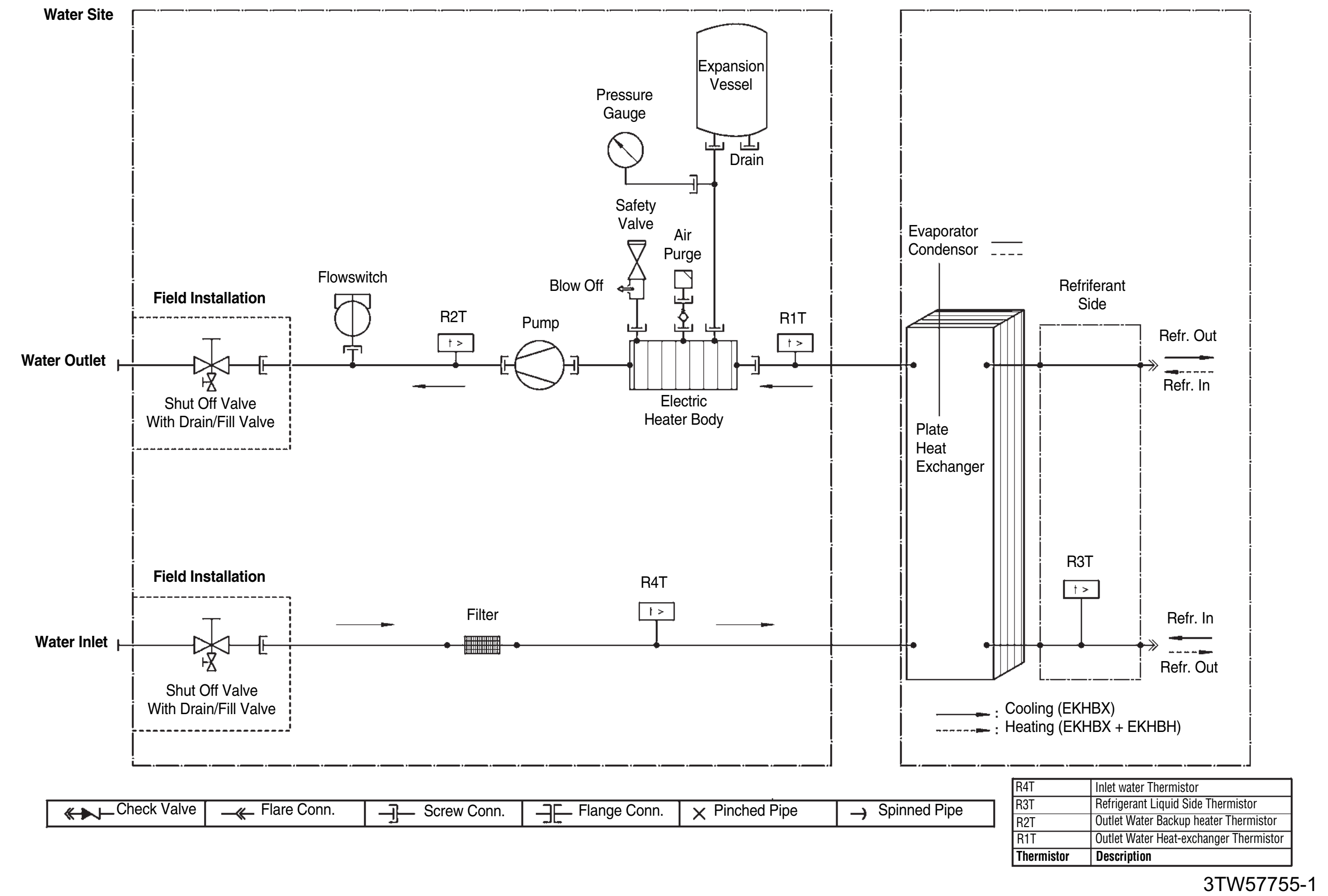
3TW57754-2

5 Piping diagram

EKHB-AC



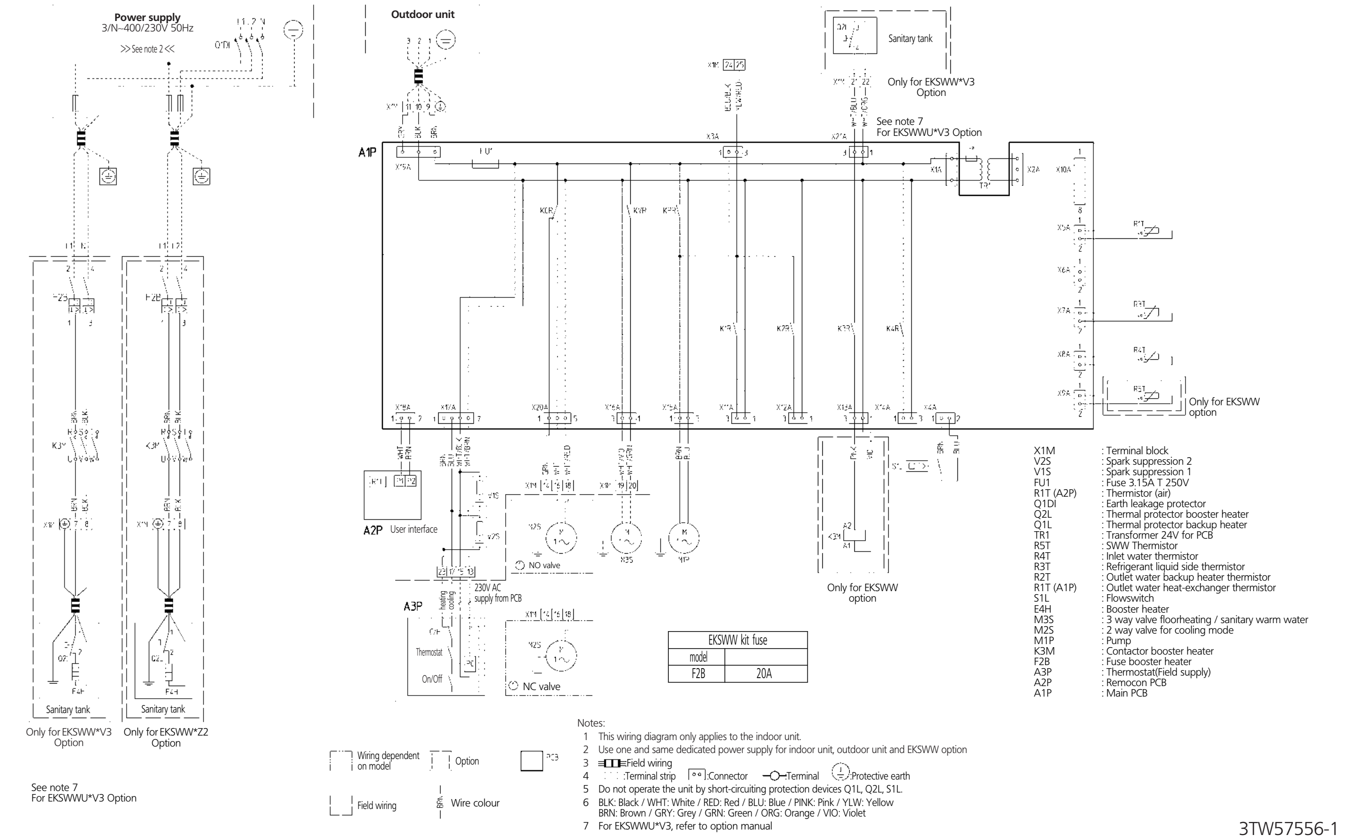
EKHBH(X)016



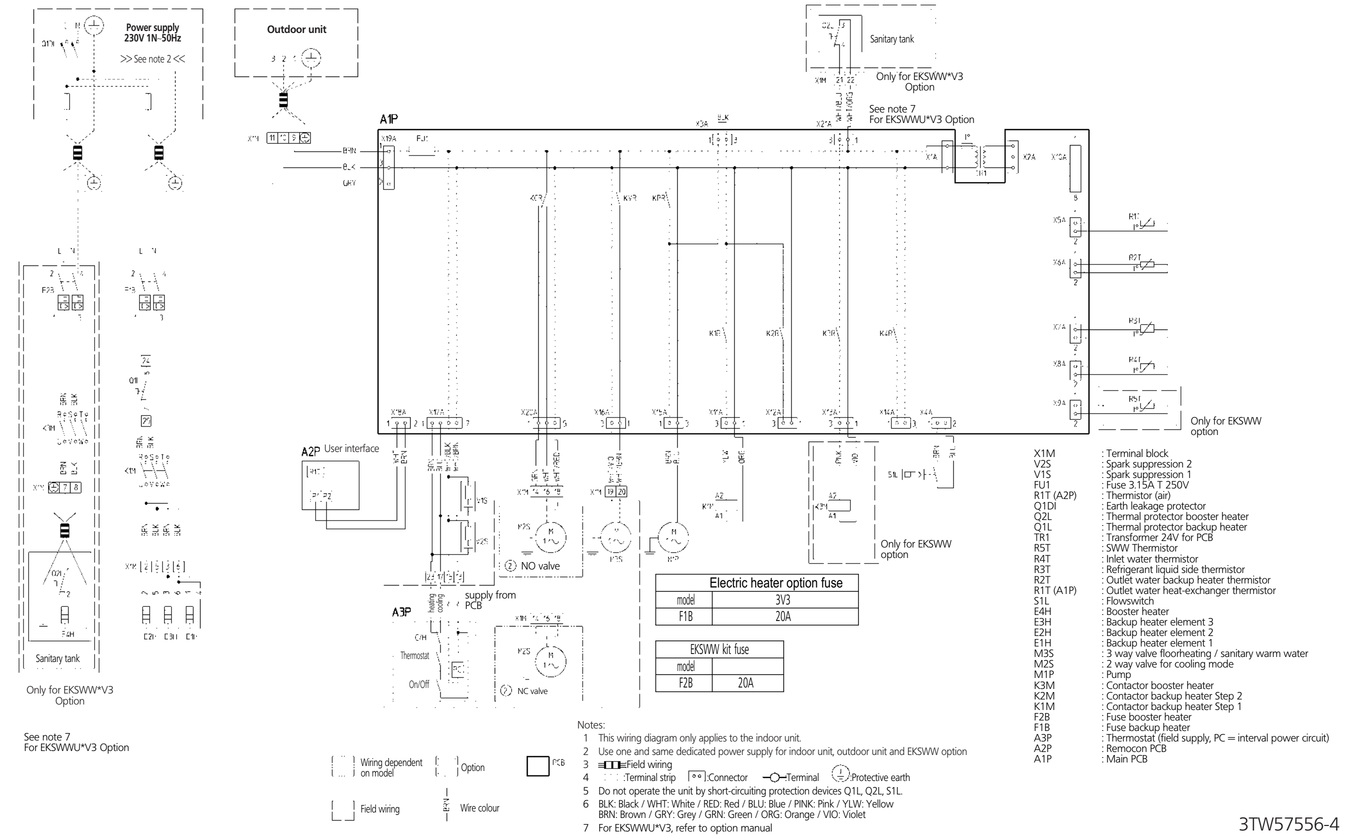
6 Wiring diagram

6 - 1 Wiring diagram

EKHB007AC

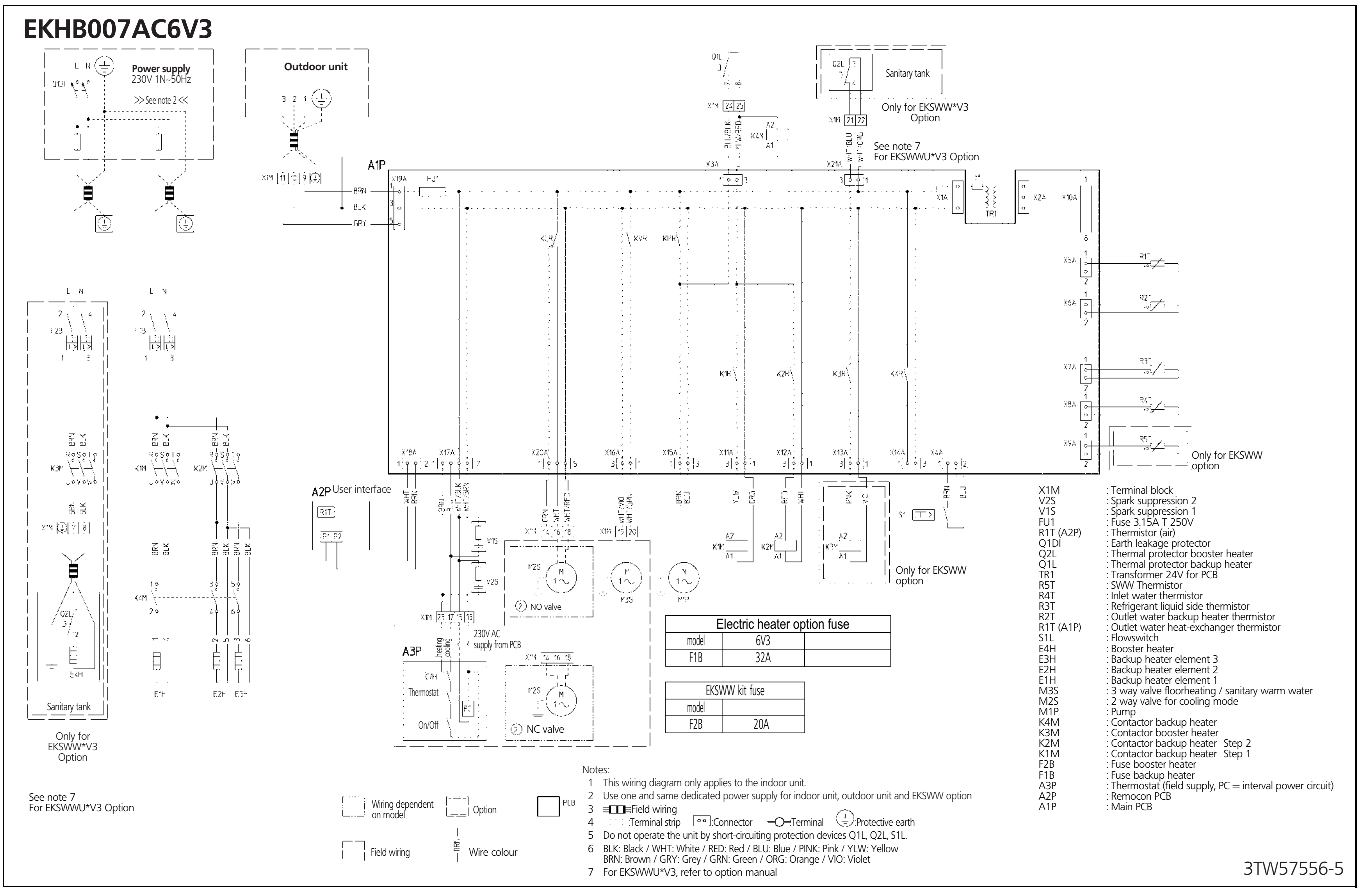


EKHB007AC3V3



6 Wiring diagram

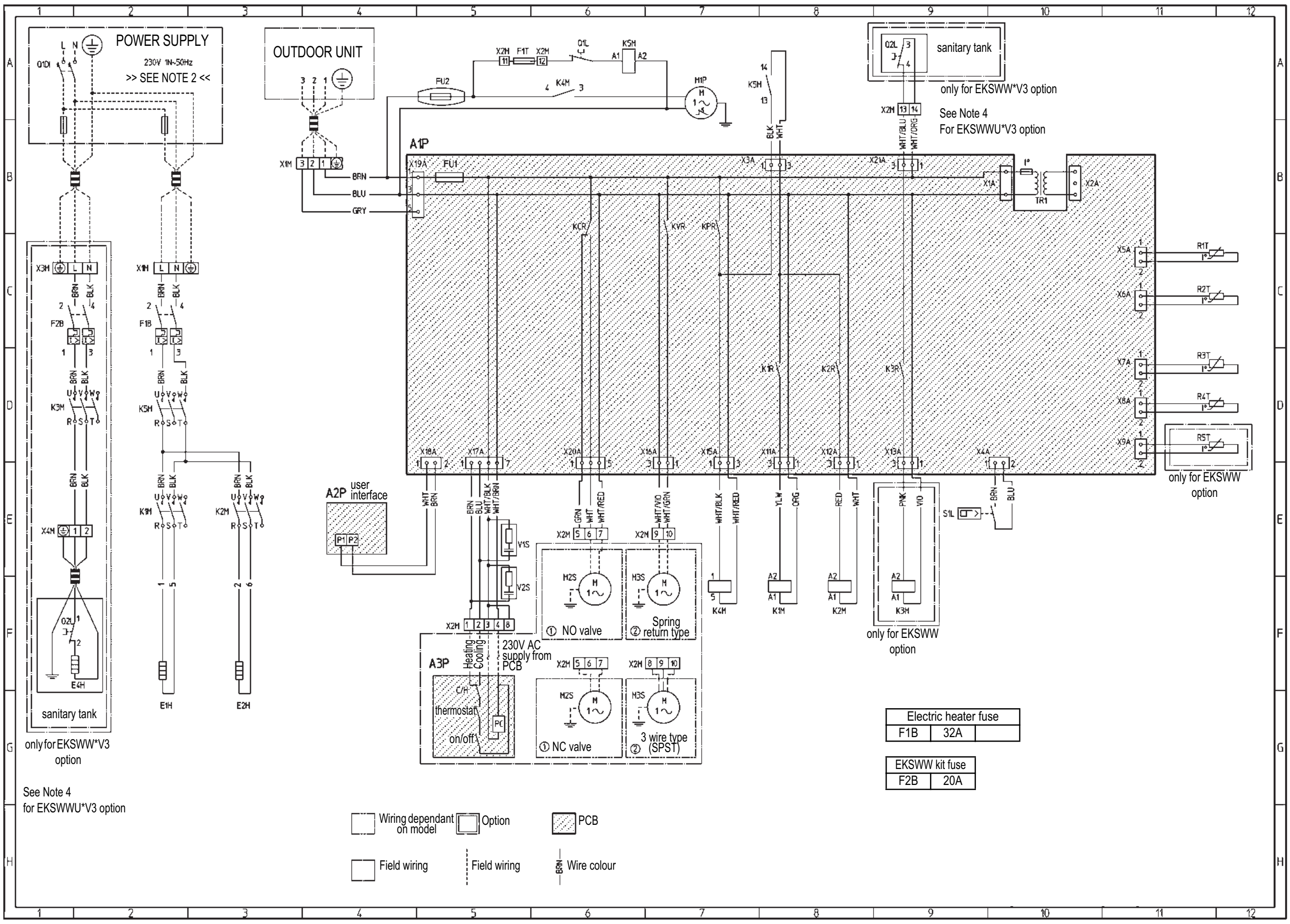
6 - 1 Wiring diagram



6 Wiring diagram

6 - 1 Wiring diagram

EKHBH(X)016 6V3



F1T	Thermal fuse backup heater	R4T	Inlet water thermistor	M1P	Pump
X1M-X4M	Terminal strips	R3T	Refrigerant liquid side thermistor	K5M	Contactor for backup heater all pole disconnection
V1S, V2S	Spark suppression1, 2	R2T	Outlet water backup heater thermistor	K4M	Pump relay
FU2	Fuse 5A T 250V for pump	R1T (A1P)	Outlet water heat exchanger thermistor	K3M	Contactor booster heater
FU1	Fuse 3.15A T 250V for PCB	S1L	Flowswitch	K1M/K2M	Contactor backup heater step 1/2
Q1DI	Earth leakage protector	E4H	Booster heater (3kW)	F2B	Fuse booster heater
Q2L	Thermal protector booster heater	E2H	Backup heater element 2 (3kW)	F1B	Fuse backup heater
Q1L	Thermal protector backup heater	E1H	Backup heater element 1 (3kW)	A3P	Thermostat (field supply) (PC = power circuit)
TR1	Transformer 24V for PCB	M3S	3way valve: floorheating/Sanitary warm water	A2P	User interface PCB
R5T	Sanitary warm water thermistor	M2S	2way valve for cooling mode	A1P	Main PCB

▭▭▭	: Terminal strip	NO/NC	Normal open/ normal closed	Colours:	BLK:	Black		PNK:	Pink
⊙⊙	: Connector	SPST	Single pole single throw		BLU:	Blue		RED:	Red
⏚	: Protective earth				BRN:	Brown		WHT:	White
–○–	: Terminal				ORG:	Orange		YLW:	Yellow
⊐▯▯⊏	: Field wiring				GRY:	Grey		GRN:	Green
					VIO:	Violet			

3TW57746-5B

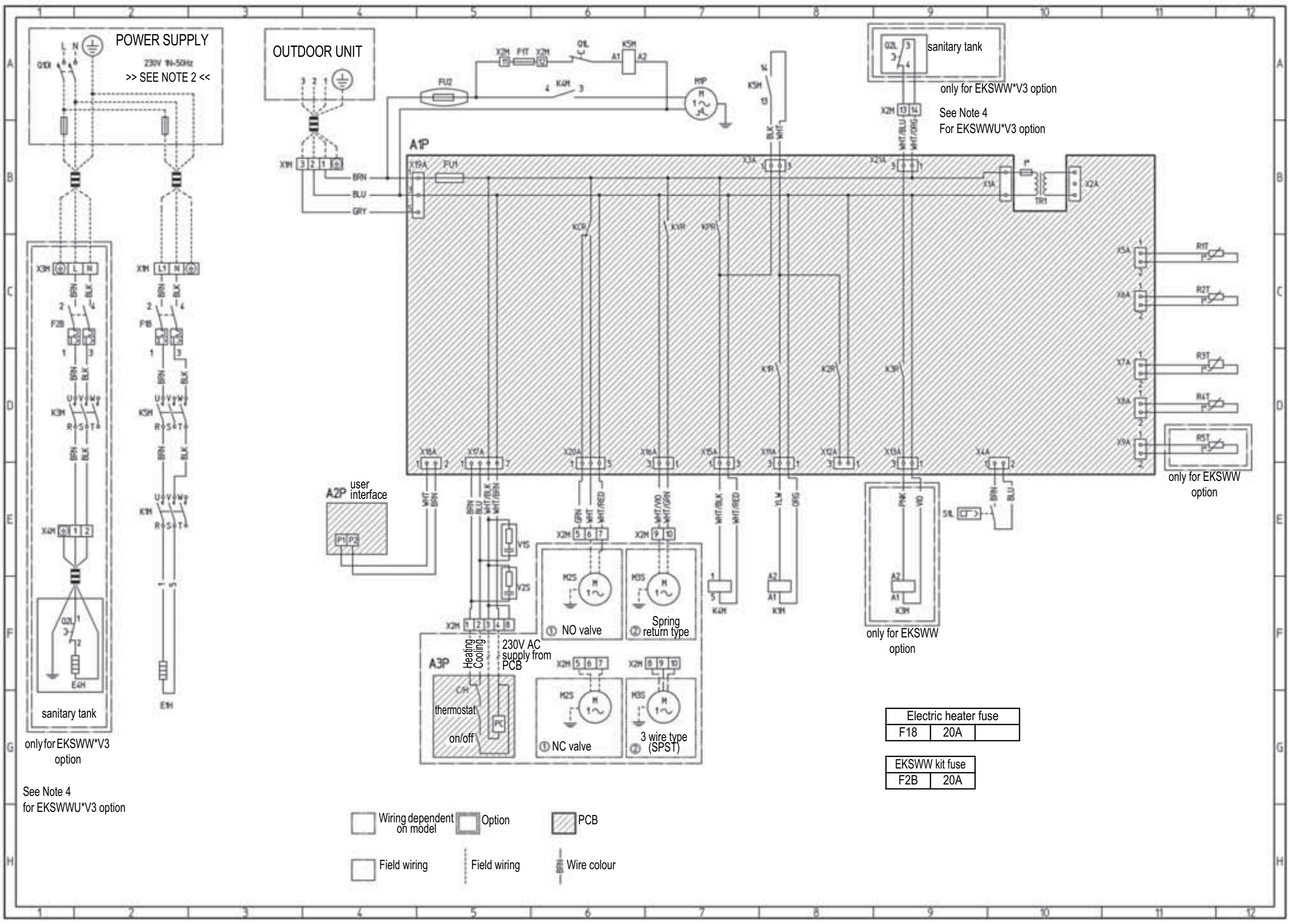
NOTES

1 This wiring diagram only applies to the indoor unit.
2 Use one and same dedicated power supply for indoor unit, outdoor unit and EKSWW option.
3 Do not operate the unit by short-circuiting any protection device.
4 For EKSWWU*V3, refer to option manual.

6 Wiring diagram

6 - 1 Wiring diagram

EKHBH(X)016 3V3



F1T	Thermal fuse backup heater	R4T	Inlet water thermistor	K5M	Contactor for backup heater all pole disconnection
X1M-X4M	Terminal strips	R3T	Refrigerant liquid side thermistor	K4M	Pump relay
V1S, V2S	Spark suppression 1, 2	R2T	Outlet water backup heater thermistor	K3M	Contactor booster heater
FU2	Fuse 5A T 250V for pump	R1T (A1P)	Outlet water heat exchanger thermistor	K1M	Contactor backup heater
FU1	Fuse 3.15A T 250V for PCB	S1L	Flowswitch	F2B	Fuse booster heater
Q1DI	Earth leakage protector	E4H	Booster heater (3kW)	F1B	Fuse backup heater
Q2L	Thermal protector booster heater	E1H	Backup heater element 1 (3kW)	A3P	Thermostat (field supply) (PC power circuit)
Q1L	Thermal protector backup heater	M3S	3way valve: floorheating/Sanitary warm water	A2P	User interface PCB
TR1	Transformer 24V for PCB	M2S	2way valve for cooling mode	A1P	Main PCB
R5T	Sanitary warm water thermistor	M1P	Pump		

☐☐☐	: Terminal strip	NO/NC	Normal open/ normal closed	Colors:	BLK: Black	PNK: Pink
⦾⦾	: Connector	SPST	Single pole single throw		BLU: Blue	RED: Red
⏚	: Protective earth				BRN: Brown	WHT: White
–○–	: Terminal				ORG: Orange	YLW: Yellow
═□□═	: Field wiring				GRY: Grey	GRN: Green
					VIO: Violet	

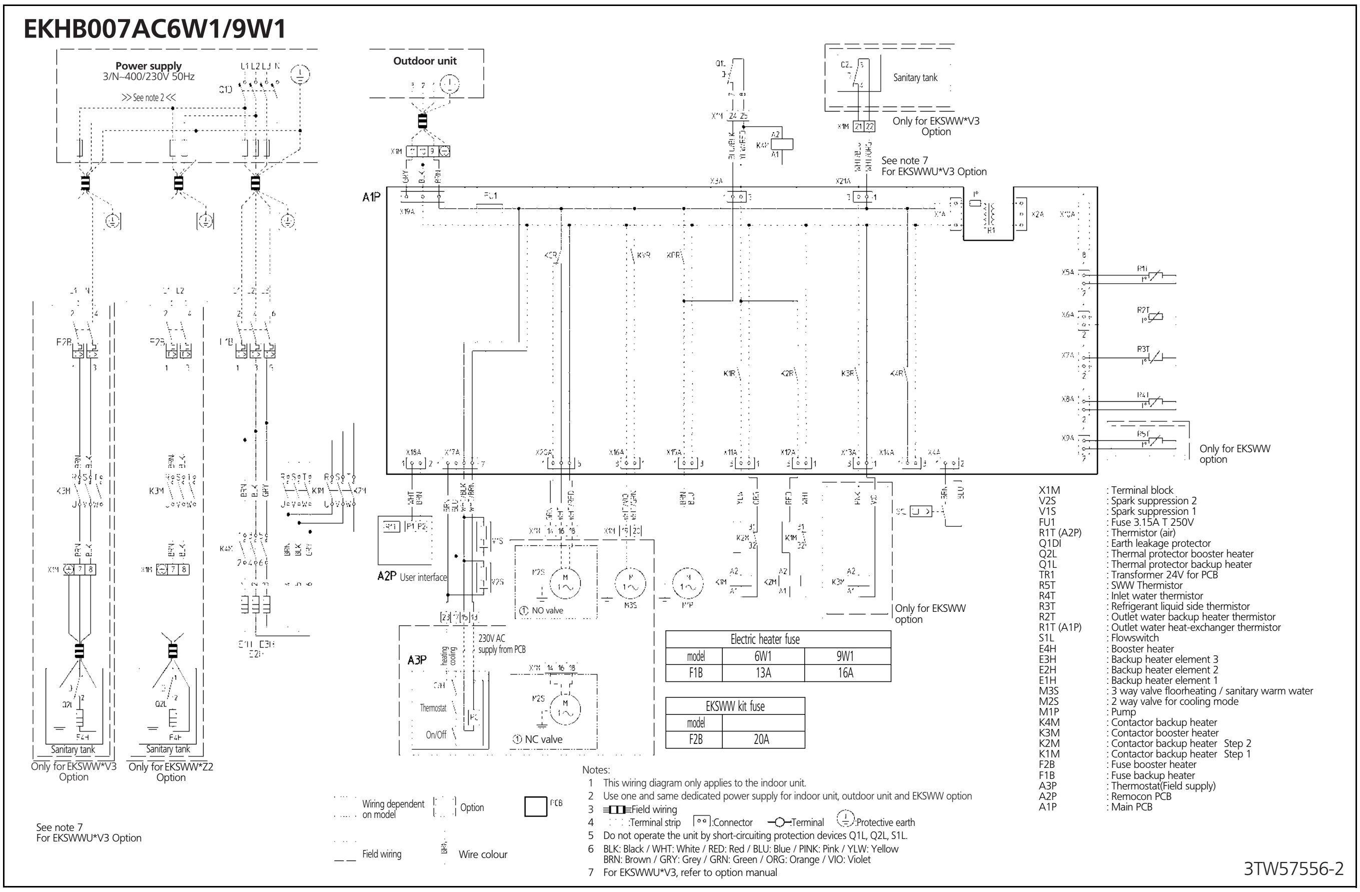
3TW57746-4B

NOTES

1. This wiring diagram only applies to the indoor unit.
2. Use one and same dedicated power supply for indoor unit, outdoor unit and EKSWW option.
3. Do not operate the unit by short-circuiting any protection device.
4. For EKSWWU*V3, refer to option manual.

6 Wiring diagram

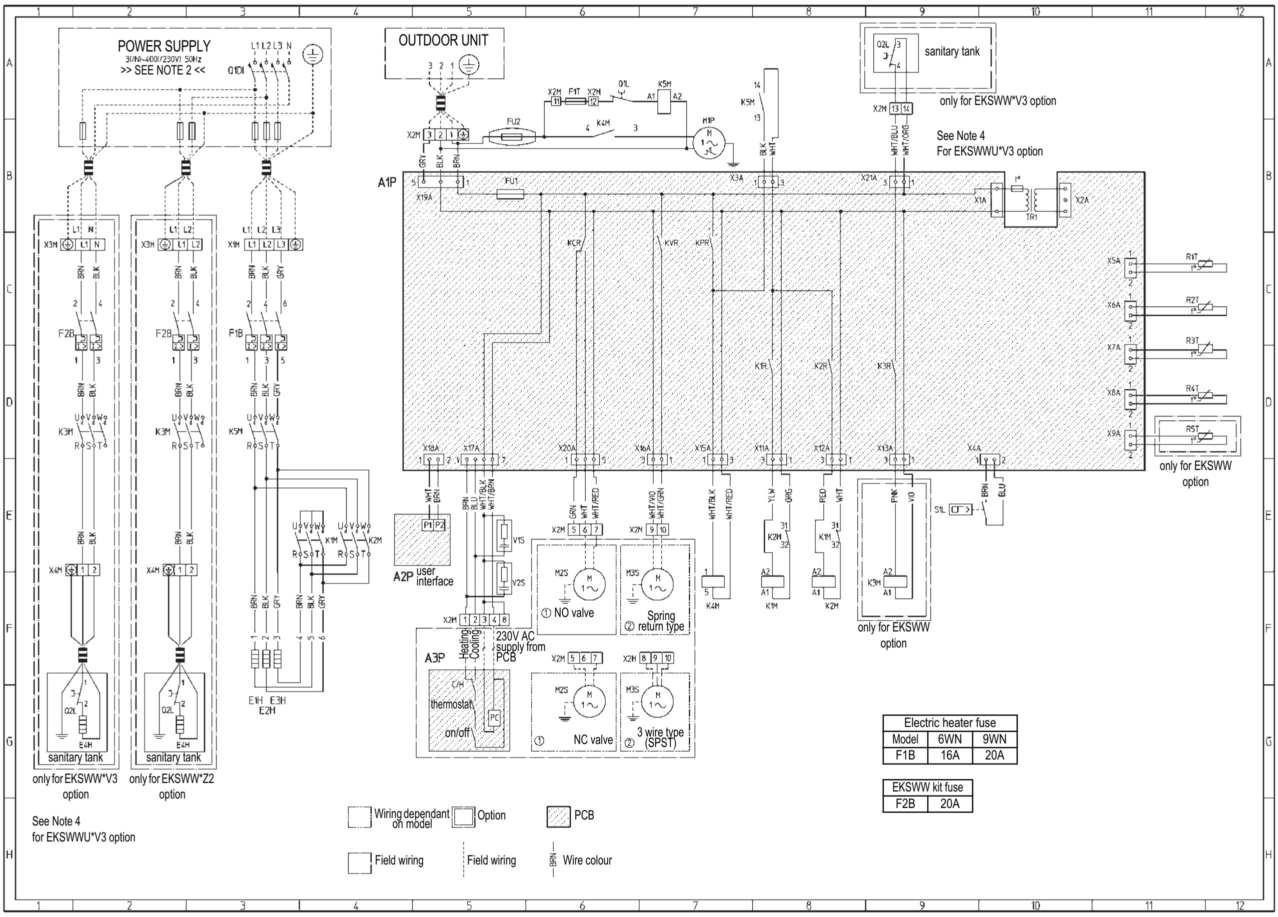
6 - 1 Wiring diagram



6 Wiring diagram

6 - 1 Wiring diagram

EKHBH(X)016 6WN/9WN



F1T	Thermal fuse backup heater	R3T	Refrigerant liquid side thermistor	M1P	Pump
X1M-X4M	Terminal strips	R2T	Outlet water backup heater thermistor	K5M	Contactor for backup heater all pole disconnection
V1S, V2S	Spark suppression1, 2	R1T (A1P)	Outlet water heat exchanger thermistor	K4M	Pump relay
FU2	Fuse 5A T 250V for pump	S1L	Flowswitch	K3M	Contactor booster heater
FU1	Fuse 3.15A T 250V for PCB	E4H	Booster heater (3kW)	K1M/K2M	Contactor backup heater step 1/2
Q1DI	Earth leakage protector	E3H	Backup heater element 3 (6WN:2kW/9WN:3kW)	F2B	Fuse booster heater
Q2L	Thermal protector booster heater	E2H	Backup heater element 2 (6WN:2kW/9WN:3kW)	F1B	Fuse backup heater
Q1L	Thermal protector backup heater	E1H	Backup heater element 1 (6WN:2kW/9WN:3kW)	A3P	Thermostat (field supply) (PC = power circuit)
TR1	Transformer 24V for PCB	M3S	3way valve: floorheating/Sanitary warm water	A2P	User interface PCB
R5T	Sanitary warm water thermistor	M2S	2way valve for cooling mode	A1P	Main PCB
R4T	Inlet water thermistor				

☐☐☐☐	: Terminal strip	NO/NC	Normal open/ normal closed	Colours:	BLK:	Black	PNK:	Pink
⚬⚬	: Connector	SPST	Single pole single throw		BLU:	Blue	RED:	Red
⏚	: Protective earth				BRN:	Brown	WHT:	White
—○—	: Terminal				ORG:	Orange	YLW:	Yellow
⊐▯▯⊏	: Field wiring				GRY:	Grey	GRN:	Green
					VIO:	Violet		

3TW57746-2A

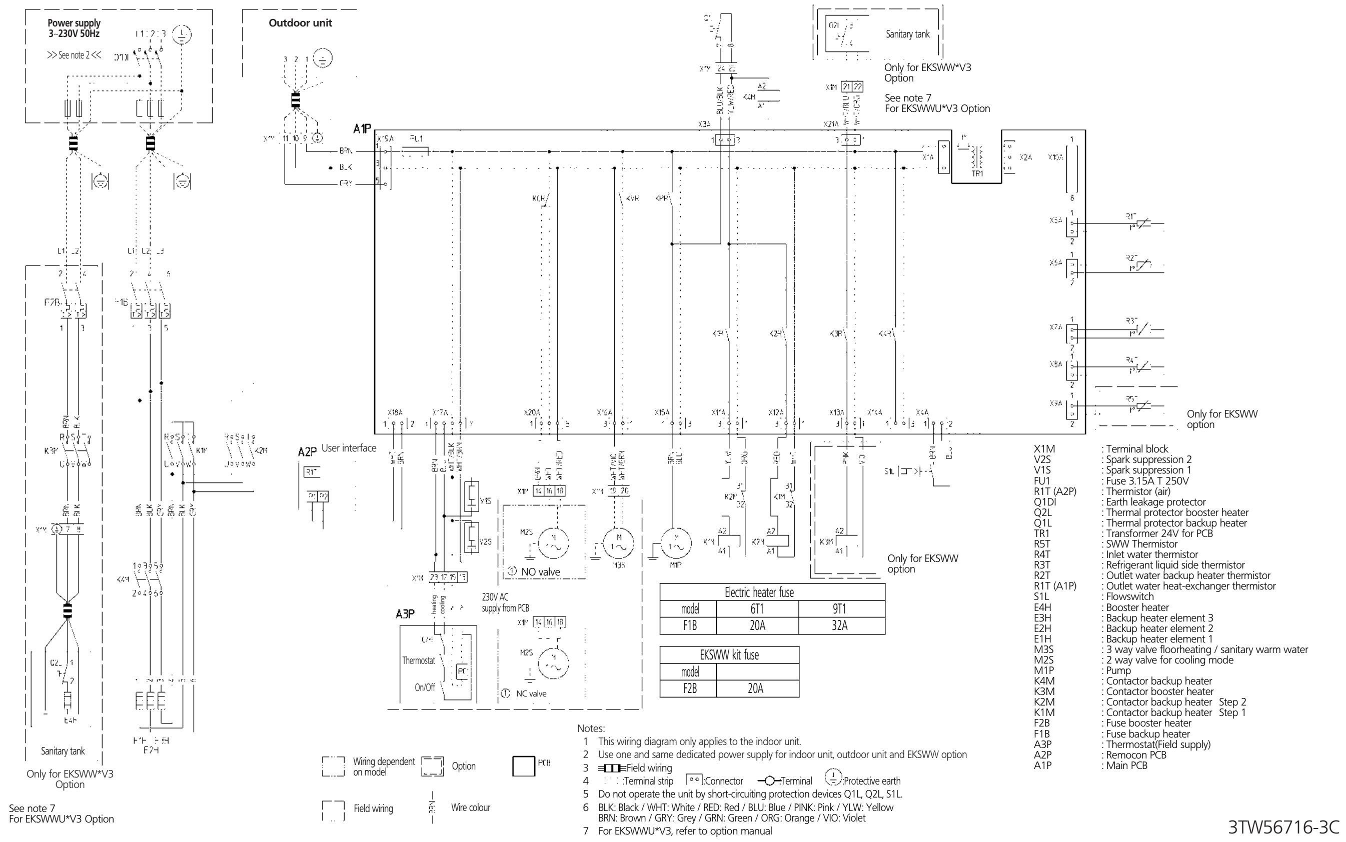
NOTES

1 This wiring diagram only applies to the indoor unit.
2 Use one and same dedicated power supply for indoor unit, outdoor unit and EKSWW option.
3 Do not operate the unit by short-circuiting any protection device.
4 For EKSWWU*V3, refer to option manual.

6 Wiring diagram

6 - 1 Wiring diagram

EKHB007AC6T1/9T1



Electric heater fuse		
model	6T1	9T1
F1B	20A	32A

EKSWW kit fuse	
model	
F2B	20A

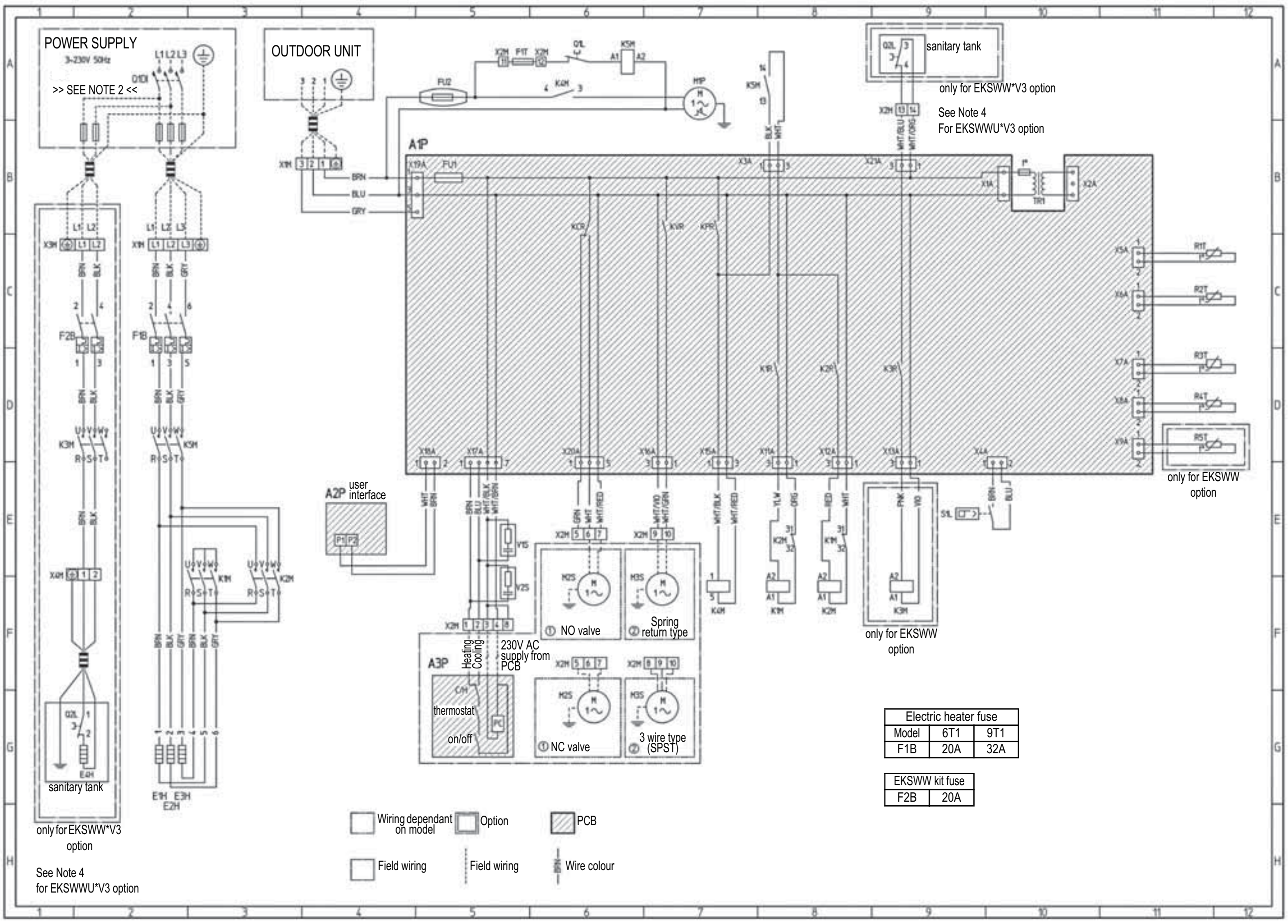
X1M	: Terminal block
V2S	: Spark suppression 2
V1S	: Spark suppression 1
FU1	: Fuse 3.15A T 250V
R1T (A2P)	: Thermistor (air)
Q1DI	: Earth leakage protector
Q2L	: Thermal protector booster heater
Q1L	: Thermal protector backup heater
TR1	: Transformer 24V for PCB
R5T	: SWW Thermistor
R4T	: Inlet water thermistor
R3T	: Refrigerant liquid side thermistor
R2T	: Outlet water backup heater thermistor
R1T (A1P)	: Outlet water heat-exchanger thermistor
S1L	: Flowswitch
E4H	: Booster heater
E3H	: Backup heater element 3
E2H	: Backup heater element 2
E1H	: Backup heater element 1
M3S	: 3 way valve floorheating / sanitary warm water
M2S	: 2 way valve for cooling mode
M1P	: Pump
K4M	: Contactor backup heater
K3M	: Contactor booster heater
K2M	: Contactor backup heater Step 2
K1M	: Contactor backup heater Step 1
F2B	: Fuse booster heater
F1B	: Fuse backup heater
A3P	: Thermostat(Field supply)
A2P	: Remocon PCB
A1P	: Main PCB

Notes:
1. This wiring diagram only applies to the indoor unit.
2. Use one and same dedicated power supply for indoor unit, outdoor unit and EKSWW option
3. Field wiring
4. :Terminal strip :Connector :Terminal :Protective earth
5. Do not operate the unit by short-circuiting protection devices Q1L, Q2L, S1L.
6. BLK: Black / WHT: White / RED: Red / BLU: Blue / PINK: Pink / YLW: Yellow
   BRN: Brown / GRY: Grey / GRN: Green / ORG: Orange / VIO: Violet
7. For EKSWWU*V3, refer to option manual

6 Wiring diagram

6 - 1 Wiring diagram

EKHBH(X)016 6T1/9T1



F1T	Thermal fuse backup heater	R3T	Refrigerant liquid side thermistor	M1P	Pump
X1M-X4M	Terminal strips	R2T	Outlet water backup heater thermistor	K5M	Contactor for backup heater all pole disconnection
V1S, V2S	Spark suppression1, 2	R1T (A1P)	Outlet water heat exchanger thermistor	K4M	Pump relay
FU2	Fuse 5A T 250V for pump	S1L	Flowswitch	K3M	Contactor booster heater
FU1	Fuse 3.15A T 250V for PCB	E4H	Booster heater (3kW)	K1M/K2M	Contactor backup heater step 1/2
Q1DI	Earth leakage protector	E3H	Backup heater element 3 (6T1:2kW/9T1:3kW)	F2B	Fuse booster heater
Q2L	Thermal protector booster heater	E2H	Backup heater element 2 (6T1:2kW/9T1:3kW)	F1B	Fuse backup heater
Q1L	Thermal protector backup heater	E1H	Backup heater element 1 (6T1:2kW/9T1:3kW)	A3P	Thermostat (field supply) (PC = power circuit)
TR1	Transformer 24V for PCB	M3S	3way valve: floorheating/Sanitary warm water	A2P	User interface PCB
R5T	Sanitary warm water thermistor	M2S	2way valve for cooling mode	A1P	Main PCB
R4T	Inlet water thermistor				

☐☐☐☐	: Terminal strip	NO/NC	Normal open/ normal closed	Colours:	BLK: Black		PNK: Pink
○○	: Connector	SPST	Single pole single throw		BLU: Blue		RED: Red
⏚	: Protective earth				BRN: Brown		WHT: White
—○—	: Terminal				ORG: Orange		YLW: Yellow
═▯▯▯═	: Field wiring				GRY: Grey		GRN: Green
					VIO: Violet		

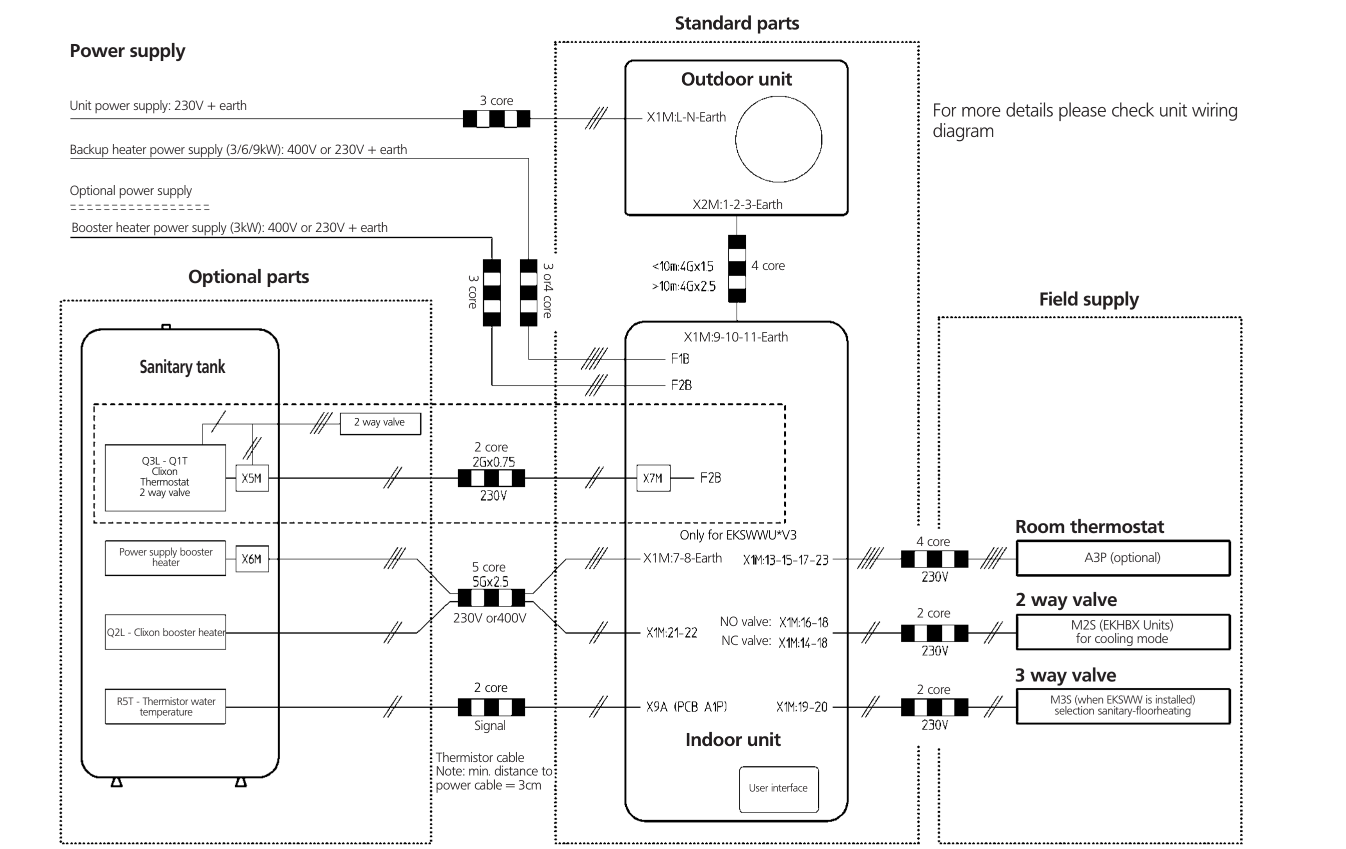
3TW57746-3A

NOTES

1. This wiring diagram only applies to the indoor unit.
2. Use one and same dedicated power supply for indoor unit, outdoor unit and EKSWW option.
3. Do not operate the unit by short-circuiting any protection device.
4. For EKSWWU*V3, refer to option manual.

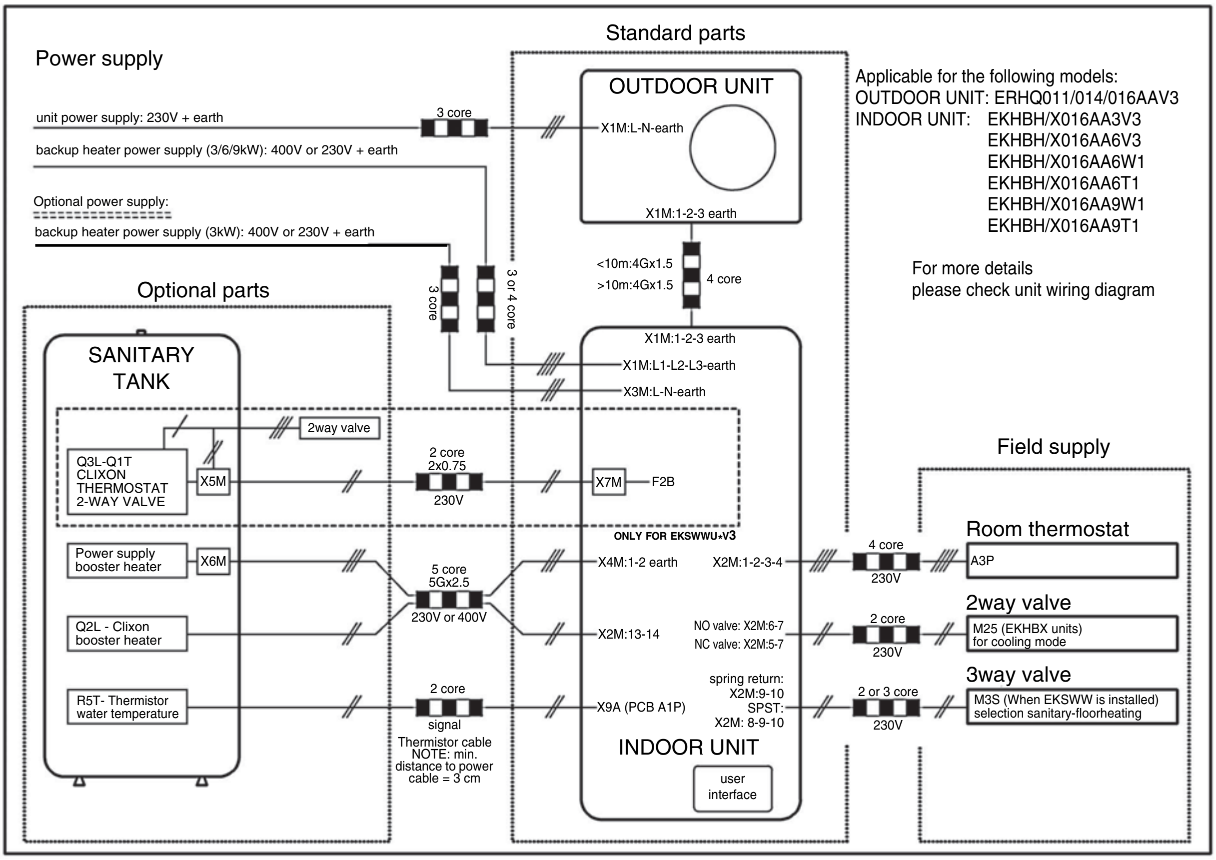
6 Wiring diagram

6 - 2 External connection diagram



3TW56719-6A

ELECTRICAL CONNECTION DIAGRAM ALTHERMA (011/014/016 CLASS)

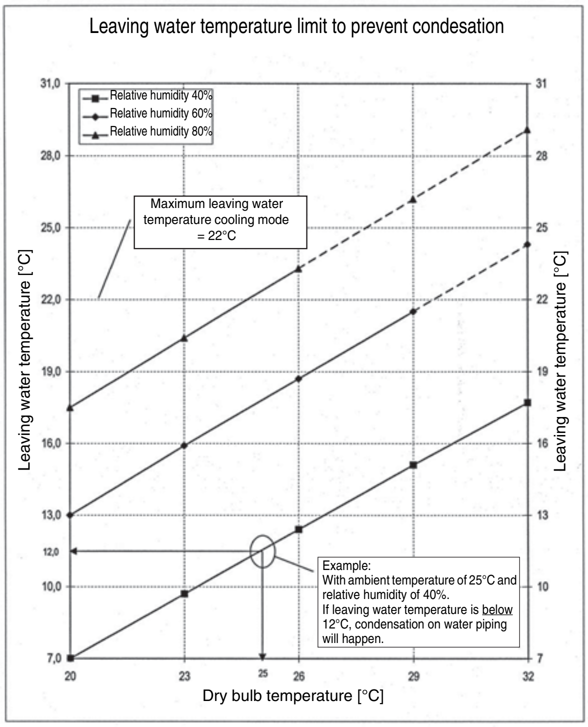


3TW57746-7

7 Installation

7 - 1 Drainage instructions

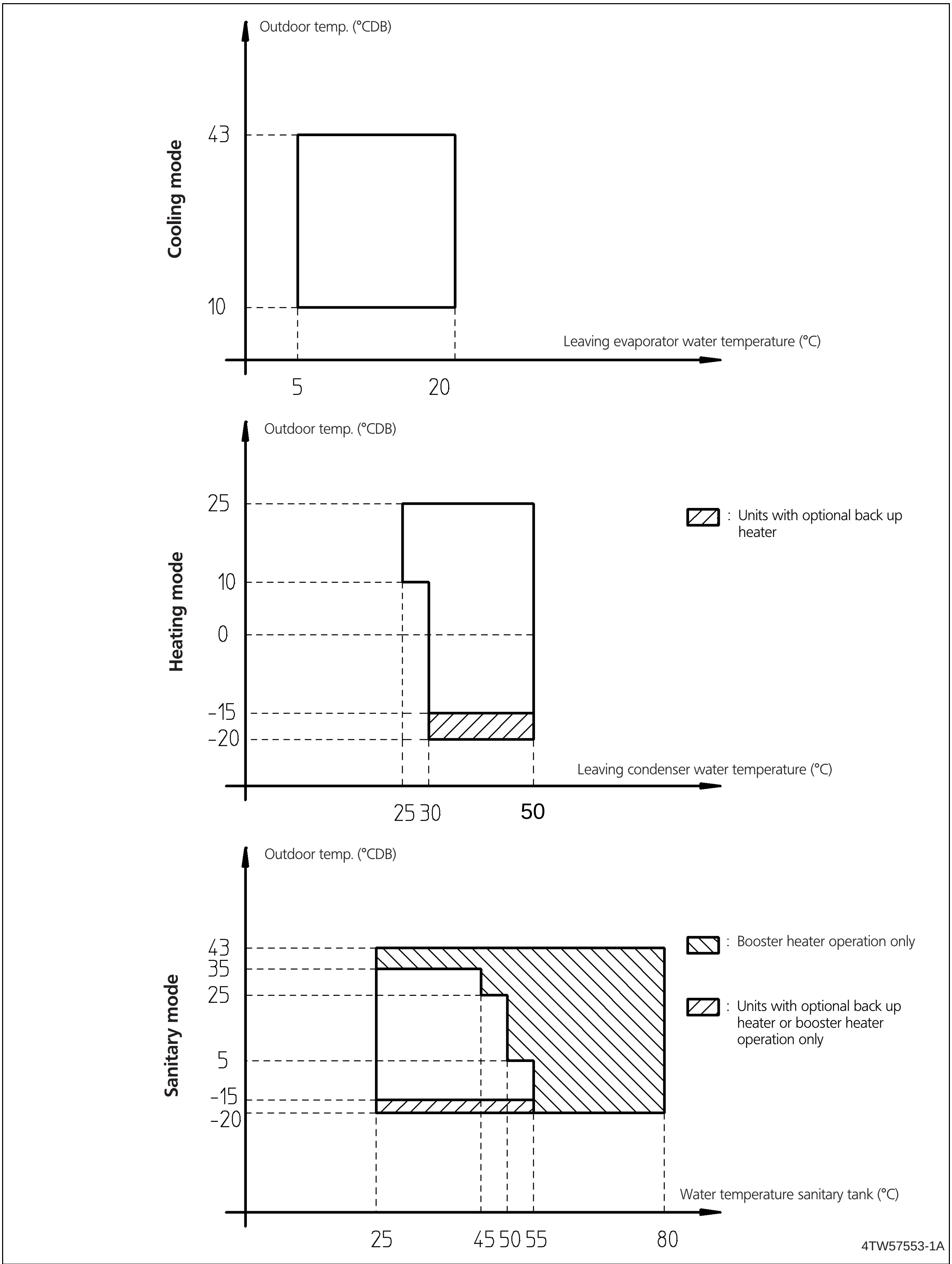
EKHBDP



1. Refer to psychometric chart for more information.
2. If condensation is expected, installation of EKHBDP - drainpan kit must be considered.

4TW57759-3

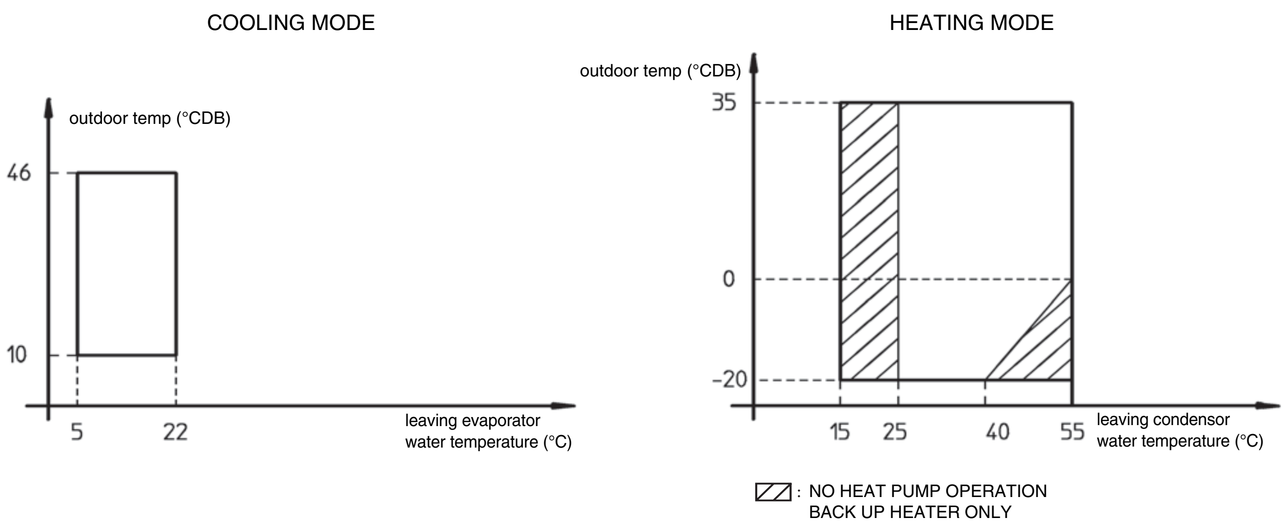
8 Operation range



8 Operation range

3
8

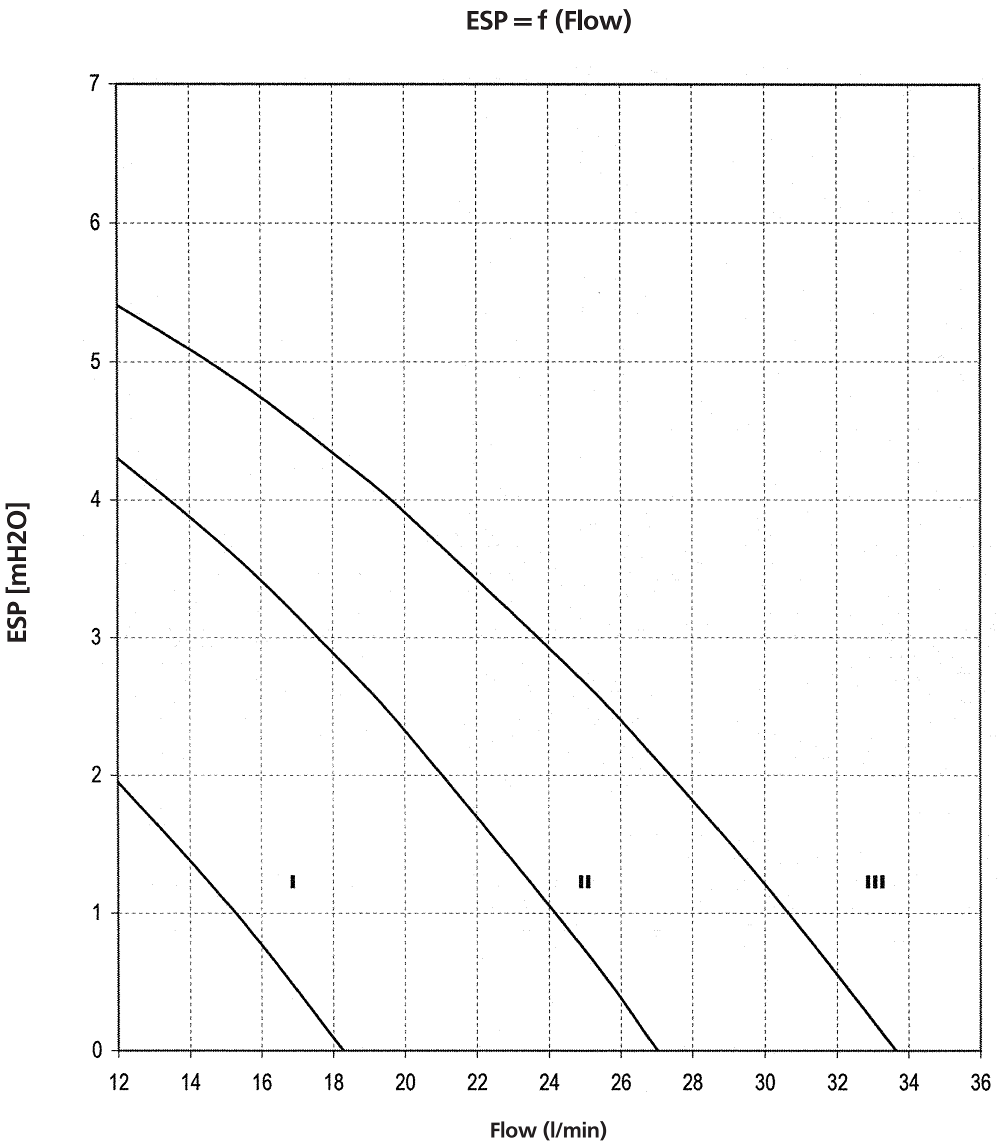
ERHQ - EKHBH(X)016



4TW57753-1A

9 Hydraulic performance

9 - 1 Static pressure drop unit



I: low speed setting pump
II: medium speed setting pump
III: high speed setting pump

ESP: External static pressure
Flow: waterflow trough the unit

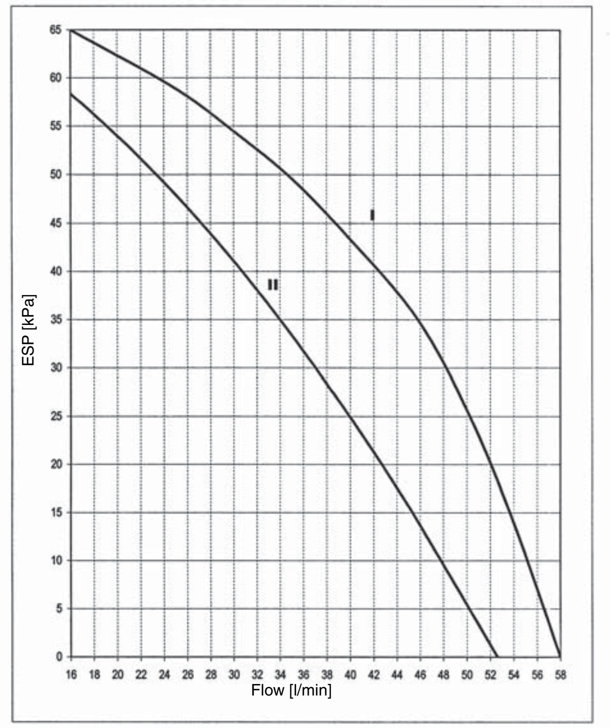
Warning: Selecting a flow outside the curves can cause damage to or malfunction of the unit. See also minimum and maximum allowed water flowrate in the technical specifications.

4TW56749-2

9 Hydraulic performance

9 - 1 Static pressure drop unit

EKHBH(X)016



I high speed
II medium speed
ESP: external static pressure
Flow: waterflow through the unit

Warning:
1. Selecting a flow outside the curves can cause damage to or malfunction of the unit. See also minimum and maximum allowed water flowrange in the technical specifications.
2. Water quality must be according to EN directive EC 98/83 EC.

4TW57759-1

TABLE OF CONTENTS
EKSWW

1 Features

- Cost effective alternative to a fossil fuel boiler
- Low energy bills and low CO2 emissions
- Easy to install
- Total solution for year round comfort



2 Specifications

2-1 TECHNICAL SPECIFICATIONS				EKSWW150V3	EKSWW200V3	EKSWW300V3	EKSWW200Z2	EKSWW300Z2	EKSWWU150V3	EKSWWU200V3	EKSWWU300V3
Casing	Colour			Neutral white							
	Material			Epoxy-coated mild steel							
Dimensions	Packing	Height	mm	950	1200	1650	1200	1650	1040	1280	1735
		Width	mm	600	600	600	600	600	600	600	600
		Depth	mm	600	600	600	600	600	600	600	600
	Unit	Height	mm	900	1150	1600	1150	1600	1015	1265	1715
		Width	mm	580	580	580	580	580	580	580	580
		Depth	mm	580	580	580	580	580	580	580	580
Weight	Unit		kg	37	45	59	45	59	38	46	60
	Packed Unit		kg	40	49	64	49	64	41	50	65
Packing	Material			EPS							
				Carton							
	Weight		kg	3	4	5	4	5	3	4	5
Main components	Tank	Water volume	l	150	200	300	200	300	150	200	285
		Material		Stainless steel (DIN 1.4521)							
		Max. temperature	°C	85	85	85	85	85	85	85	85
		Max. water pressure	bar	10	10	10	10	10	10	10	10
Tank	Insulation	Material		Polyurethane foam							
		Min. thickness	mm	40	40	40	40	40	40	40	40
Main components	Heat exchanger	Quantity		1	1	1	1	1	1	1	1
		Material		Stainless steel (DIN 1.4401)							
	Booster heater	Quantity		1	1	1	1	1	1	1	1
		Capacity	kW	3	3	3	3	3	3	3	3
Temperature sensor	Cable length		m	12	12	12	12	12	12	12	12
Piping connections	Water inlet H/E Diameter		inch	3/4'' FBSP							
	Water outlet H/E Diameter		inch	3/4'' FBSP							
	Cold water in Diameter		inch	3/4'' FBSP							
	Hot water out Diameter		inch	3/4'' FBSP							

2-2 ELECTRICAL SPECIFICATIONS				EKSWW150V3	EKSWW200V3	EKSWW300V3	EKSWW200Z2	EKSWW300Z2	EKSWWU150V3	EKSWWU200V3	EKSWWU300V3
Unit	Power Supply	Phase		1	1	1	2~	2~	1	1	1
		Frequency	Hz	50	50	50	50	50	50	50	50
		Voltage	V	230	230	230	400	400	230	230	230
	Nominal running current		A	13	13	13	7.5	7.5	13	13	13
	Fuse	Size	A	20	20	20	20	20	20	20	20
		Phase		1	1	1	2~	2~	1	1	1

3 Options

EKSWW

Kit availibility for EKSWW*

Reference	Description						
	EKSWW...	150V3/Z2	200V3/Z2	300V3/Z2			
	EKSWWU...				150V3	200V3	300V3
EKUSWW	Option kit for UK EKSWWU150~300V3	-	-	-	0	0	0
EKWBSWW150	Wall bracket for EKSWW150V3	0	-	-	0	-	-

3TW57759-2A

4 Capacity tables

4 - 1 Cooling capacity tables

The ALTHERMA by Daikin heat-pump in combination with the optional sanitary tank provide hot water for household usage.
The below mentioned data allow a proper selection of the sanitary tank size for maximum comfort and efficiency.

(1) Sanitary hot water volume:

The volume of hot water available for domestic sanitary usage depends on the physical volume of the sanitary tank, on the sanitary water setpoint temperature and on the temperature spreading in the tank.
Therefor we define the equivalent hot water volume (EHWV).

Definition:
EHWV = The volume of hot water available for domestic sanitary usage at a temperature of 40°C.
40°C is considered a comfortable sanitary hot water temperature.

Tank	Setpoint temp. (°C)	EHWV (l)	Usage pattern		
			Modest	Medium	High
150L	55	110	-	-	-
	65	150	+	-	-
	75	175	++	+	-
200L	55	160	+	-	-
	65	200	++	+	-
	75	240	++	++	-
300L	55	295	++	++	-
	65	385	++	++	+
	75	435	++	++	++

Grade ++ Excessive availability of sanitary hot water.
\+ Sufficient availability of sanitary hot water.
\- Temporary shortage of sanitary hot water can occur.

Usage pattern **Modest** Daily demand up tp 220 l -> typcial 2-persons usage pattern.
Medium Daily demand up to 325 l -> typical 3 to 4 persons usage pattern.
High Daily demand up to 550 l -> 4 to 6 persons usage pattern.

(2) Heat-up time:

Definition:
Heat-up time The time required to reheat the sanitary tank to 55°C after tapping a certain volume of hot water at 40°C.
note: changing the field settings (see installation manual) can influence the heat-up time.

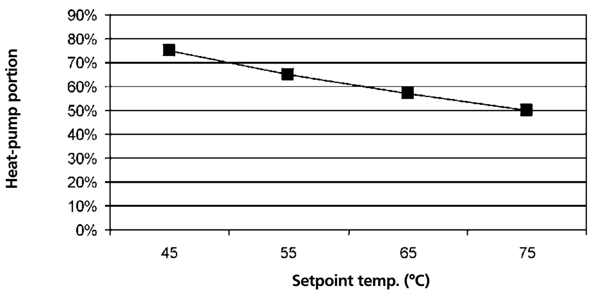
Tank	Setpoint temp. (°C)	**Heat-up time for 150 L (bath) <min>**	**Heat-up time for 50 L (shower) <min>**
150L	55	60	45
200L	55	60	40
300L	55	50	30

Conditions for testing: Ta = 7°CDB / 6°CWB, Troom = 20°C, Tstart = 10°C, outdoor unit type: ERYQ007

(3) Efficiency of sanitary hot water production:

In the ALTHERMA by Daikin system both the heat-pump and the electric booster heater supply the energy to produce sanitary hot water.
The higher the portion of energy supplied by the heat-pump, the more energy efficient the system is.
Lowering the setpoint temperature increases the portion of energy supplied by the heat-pump and thus the efficiency of the system.

Definition:
Heat-pump portion Percentage of energy supplied by the heat-pump in the total energy need for sanitary hot water.

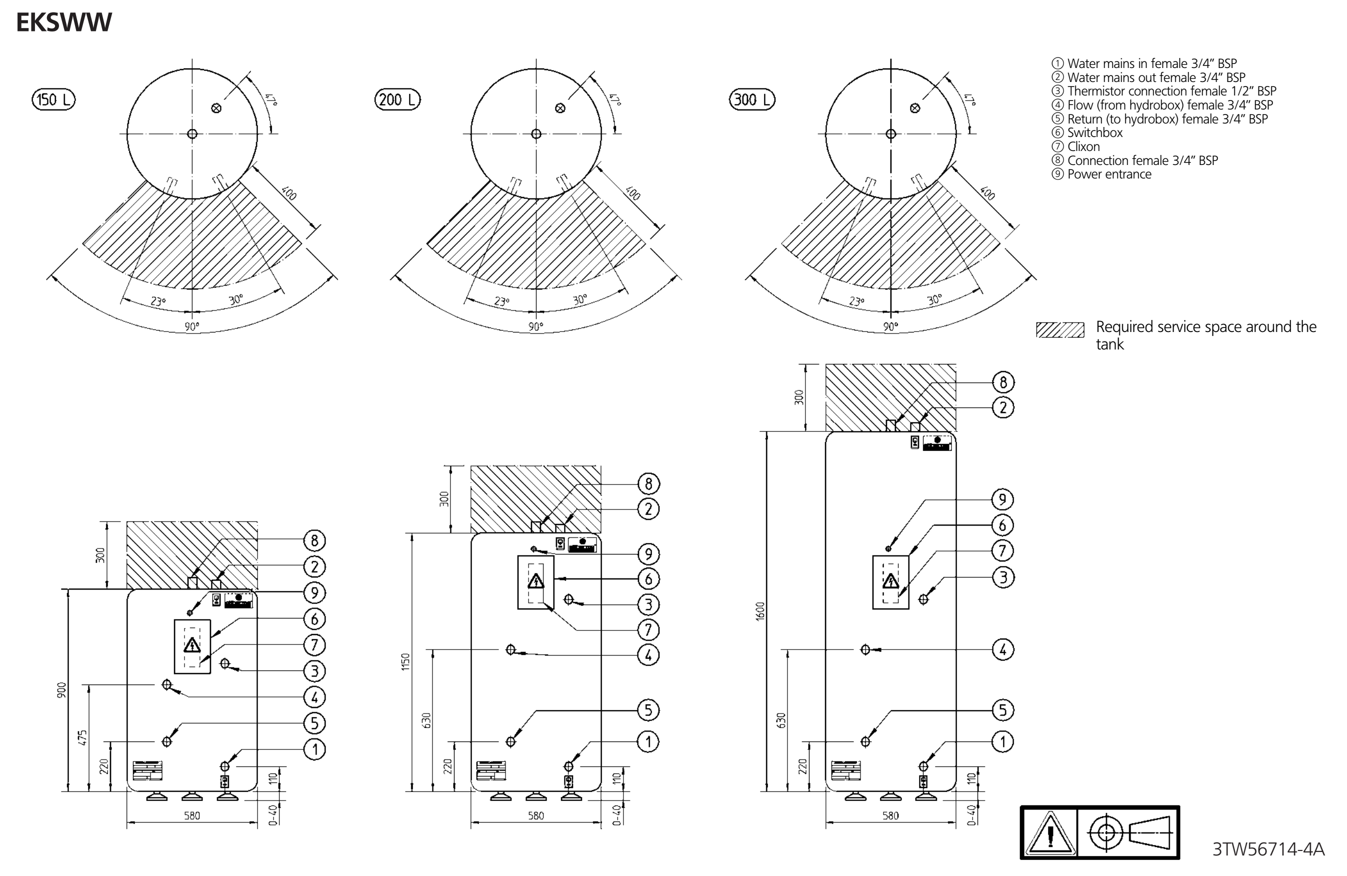


Conditions:
Real life condition: Simulation of a daily usage based upon 'medium' usage pattern.
Outdoor temperature: 7°CDB / 6°CWB
Room temperature: 20°CDB
Outdoor unit type: ERYQ007
Tank type: 200l
Field settings: Default field settings (see installation manual).

4TW56719-3

5 Dimensional drawing & centre of gravity

5 - 1 Dimensional drawing



6 Wiring diagram

6 - 1 External connection diagram

